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The OIL WEEKLY and The COMPOSITE CATALOG
for the drilling-producing-pipeline industry

PETROLEUM REFINER and The REFINERY CATALOG
for the refining-natural gasoline industry

LOOKING AHEAD
. . . with the Editor

TAKING full advantage of depletion allowance in computing taxes calls for expert knowledge from the oil operator. The depletion allowance by separate properties must be computed for each taxable year and the result for each period stands on its own.

Now that the industry has entered the period of readjustment, it is of the utmost importance that operating uncertainties be reduced in every possible manner. The tax saving of approximately 20 percent that is permissible through depletion allowance can be the difference between being "liquid" and being "in liquidation" during the times immediately ahead.

Accurate records are essential to secure the full benefit from depletion allowance. Such being the case the tax accountant and operator should review the status of each separate property as far in advance as possible, making revisions as soon as estimates become facts and as additional information is secured.

If the services of a tax accountant are not being used before making expenditures on individual properties, the operator may be under the impression that he is securing full tax advantage, but such may not be the case.

Marion F. Munro, accountant with the Sun Oil Company, gives an interesting and informative discussion of the problem in an article, "Are You Taking Full Advantage of Your Depletion Allowance?" soon to appear.

The OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

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Contents • September 17, 1945

Volume 119, No. 3

The Changing Panorama 45

Technical and Feature Articles:

Alberta Gas Resources 47
By FLOYD K. BEACH
North Carolina Becomes Focal Point of Oil Search 50
By WELDON B. HILL
Caliper Well Logging, Part 4 52
By HUBERT GUYOD
Laying Down Drill Pipe 58
By ELTON STERRETT
Planning Foreign Geophysical Parties 60
By C. H. DRESBACH
August Rate of Completions Very Little Above Last Year 67
Production Hints 68
Pipe Line Hints 70

News and Departments:

Looking Ahead 43
The Outlook 73
The News in Pictures 74
The Week's News 75
Market Trends 81
Pipe Line News 84
Field Operations 85
Exploratory Completions 102
Wildcat Starts 104
Squeaks from the Bull Wheel 105
Men in the Industry News 106
Book Review 108
New Equipment, Literature 109
Index to Advertisers 112

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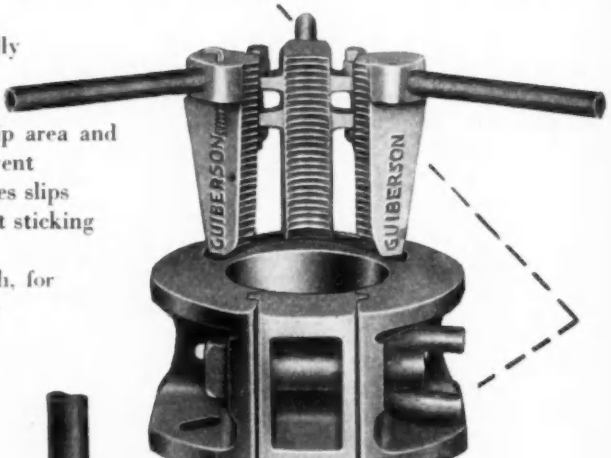

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The Changing Panorama

Best Conservation Is ConstantDevelopment

TERMINATION of the war will result in a cry that the nation's natural resources of petroleum and many other minerals are nearing exhaustion. Many will advocate that the United States buy its requirements from other countries so as to keep its minerals underground until needed for national security in the future.

This is unsound and such a policy would jeopardize the security of the nation. It appears paradoxical, but experience shows that the best way to save minerals is not to leave them in the ground—but to use them.

Suppose we had listened to "have-not" propagandists in the past, and had adopted a policy of buying our supplies from abroad and let our mines become idle. Under such conditions our mining industries surely would have disappeared. The production of minerals cannot be turned off and on at will. Instead, years of groundwork are required to achieve any great increase in output. Hence when war came, our supplies would have been dangerously limited.

Fortunately, we kept our mining industries healthy and alive. Consequently, a steady improvement in production and processing methods occurred. These enabled us constantly to produce more and more at cheaper and cheaper costs, although frequently dependance was upon poorer quality sources for supply. History proves that the best conserving agent is the technological progress that comes from healthy industries.

Take the oil industry for example. Today, we find oil in areas and at depths not even considered 25 years ago. Today, we produce 70 to 80 percent of the oil contained in a reservoir in contrast with about 40 percent at the end of World War I. Today, we continue to operate fields that a few years ago would have been abandoned because of low output and high costs. Today, refineries convert up to 70 percent of the crude oil into gasoline, whereas only 20 percent was possible before the advent of cracking. Were it not for the progress in discovery, producing and refining methods, the United States would have been out of petroleum long ago. Instead, we entered the war with discovered reserves at an all-time peak although production rates had climbed to record levels. A healthy, active industry saved our supply of petroleum.

Copper is an example of ore mining industries. Two generations ago copper mining was confined to deposits yielding about an 8 percent ore. Through the years, improved methods permitted the development of new resources that assayed less then the previous economic limit. As these new fields were opened, production always rose to higher levels, costs always were reduced, and our raw resources multiplied many times. It became possible to work copper ore as low as 0.7 percent between World War I and World War II.

All this boils down to the fact that best conservation of any natural resource is reasonable prosperity that will keep the industry alive. This requires the use of our minerals so our mines and wells will remain in operation.

This point should be kept in mind in planning for the future.

The Quartermaster Corps' program of reclaiming 55-gallon oil and gasoline drums during the first six months of 1945, resulted in conservation of more than 65,000 tons of heavy gauge steel and cash savings of $4,555,000.

Atomic Energy Uses

ATOMIC power, as a servant of mankind, may find one of its first applications as a new source of energy to drive gas turbines, in the opinion of many members of the Gas Turbine Coordinating Committee of the American Society of Mechanical Engineers.

"Atomic power is an addition to the world's supply of fuel," stated R. Tom Sawyer, chairman of this ASME committee. "It certainly will not replace present fuels but will supplement them, as oil supplements coal."

"If we could take a small portion of plutonium and release its power bit by bit into a jet propulsion unit, we would, no doubt, have a plane which would fly from here to China without refueling," one committeeman believed.

While many of the committee members who replied shared the opinion of the chairman in the future use of atomic energy for gas turbines, some viewed the field as too highly speculative, or believed security regulations too strict, to warrant exploration by the committee at the present time.

Two major obstacles stand in the way of the application of atomic energy in the field of industrial power: the cost of producing this energy will be high at first, and the technical problems involved in using atomic power to obtain mechanical energy through such agencies as the gas turbine will require extensive research.

In the light of recent gas turbine development, engineers visualized a broad pattern of power generation for the near future in which the diesel would find widest use in sizes below about 2000 kilowatts, and the gas turbine in sizes from about 2000 kilowatts to possibly 20,000 kilowatts. The steam turbine would dominate the large-power field, in unit sizes up to and above 100,000 kilowatts.

"It now seems possible that atomic power may create a unit above 200,000 kilowatts wherein both the gas and steam turbine are utilized in the same plant, using both present fuel and atomic power to achieve the greatest efficiency," Sawyer said.

Not Going to London Just for the Ride

IT IS to be hoped that administration leaders who invited members of the national policy committee of the PIWC to go to London for discussion of the Anglo-American oil agreement are sincere in their announcement that technical advice is to be sought from the six petroleum industry leaders. The list includes William R. Boyd, A. Jacobsen, George A. Hill, Jr., Walton Jones, Joseph E. Pogue, and Ralph T. Zook, and they are well able to guide the politicos along the right lines if said politicos will just lend an ear.

The oil industry was left pretty well on the outside when talks were held leading to the first draft of the proposed pact. Then when the details were announced, the industry was forced by the very nature of the language and provisions to enter vigorous protests. These protests had the effect of stalling the procedure to the extent that the pact as referred to the Senate for possible ratification gained little support. An additional conference became necessary and Secretary Ickes, Deputy Administrator Davies and Charles B. Rayner are in London for further negotiations today.

The oil industry is well represented and unless the chosen six were taken along merely for the ride, the resultant document will show vast improvement over the first version which thinking Americans, not without justification, turned down a year ago.

Employment Outlook

THAT the oil industry will be able to absorb its share of the unemployed during the next year seems certain. Due to the slackening in demand for crude oil, there may be no increase in personnel needed in the production branch of the industry, in the immediate future. In the distribution of petroleum products however, there should be an opening for many new people.

William R. Boyd, president of API and chairman of PIWC recently said that the oil industry in America will employ more people generally than it did before the war.

Predicting that civilian consumption of gasoline will soon rise to as much as 67,200,000 gallons daily, Boyd said that the greatest increases in employment will come in the fields of distribution, both of present products and new ones.

Deputy Petroleum Administrator Ralph K. Davies also said recently that increased civilian demand will compensate to a considerable extent for the decrease in military requirements, practically assuring no measurable unemployment resulting from these military cutbacks.

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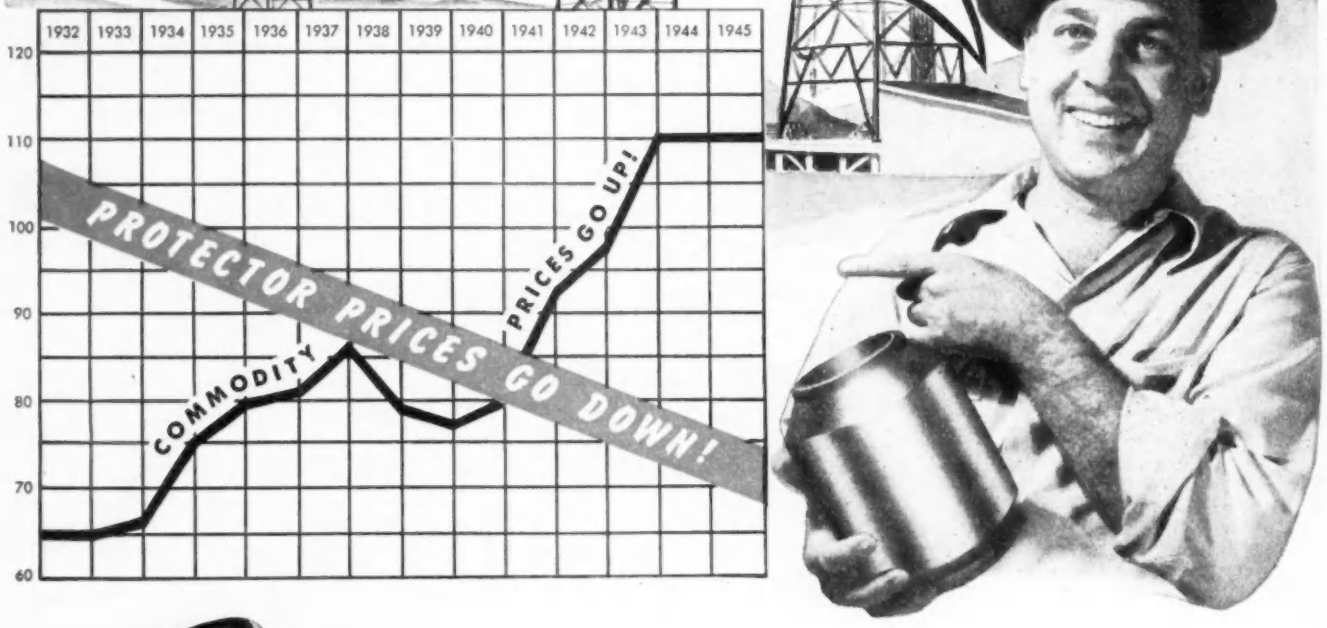

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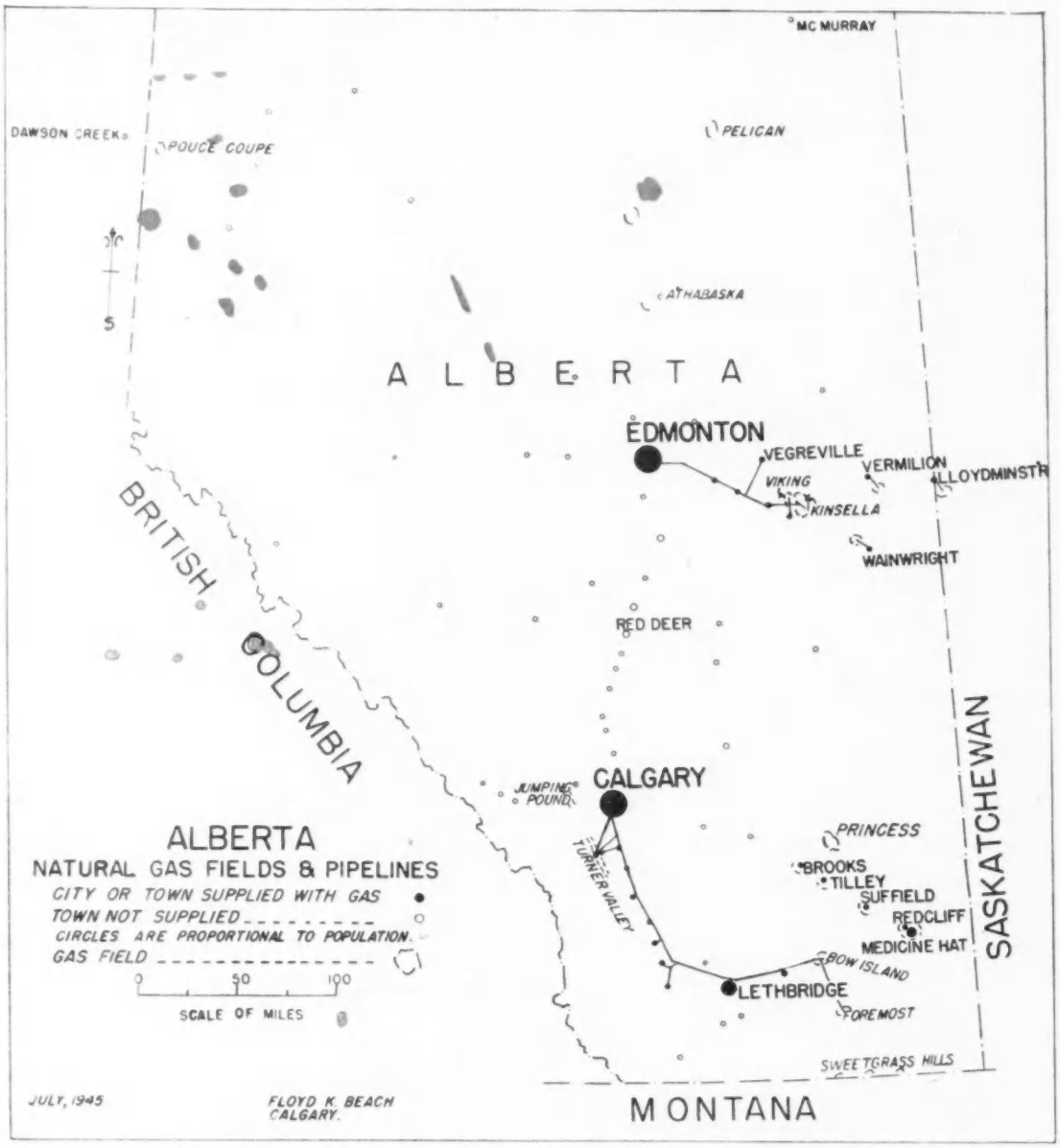

Alberta Gas Resources

By FLOYD K. BEACH, Engineer,
Alberta Petroleum and Natural Gas Board

WITH increased interest becoming evident in the use of natural gas for chemical purposes, that is, for purposes other than fuel, an inventory of probable Alberta reserves is in order.

Alberta has been blessed by abundant gas resources and unfortunately has not treated them with the respect that is their due. The worst example was Turner Valley, from which some 1329 million mcf* has been produced and only about 20 percent put to any useful purpose, with nearly half the estimated use handled in a rather wasteful manner.

Of Alberta's population of about 750,000 people, about a third live in cities and towns served with gas distribution mains. One distribution system covers the southern part of the province from Calgary to Lethbridge and eastward to the exhausted Bow Island field. Another system serves Edmonton and towns between Viking and Edmonton, with a side branch to Vegreville.

Medicine Hat and Redcliff are served by wells within and immediately surrounding the populated area, and the smaller places, Brooks, Tilley, Suffield, Wainwright and Vermilion, are likewise served by local sources.

Edmonton Load Heavier

The people on the Calgary-Lethbridge system are probably 95 percent connected to gas mains. Edmonton was for some years only about 50 percent served owing

* The expression mcf means 1000 cubic feet at standard conditions of 14.4 pounds and 60° F. Mcf is quoted because it is the unit for which a consumer pays from 40 cents to 25 cents or less in Alberta and is more easily convertible to a dollar concept than the infinitesimal cubic foot.

to competitive coal supplies mined locally, but during the war the increase in load at Edmonton has been very considerable.

It is thus probable that about 20 percent or 25 percent of Alberta's total population is served with natural gas for domestic fuel. Its advantages as a source of clean, cheap fuel are such that most consumers will revert to the use of coal rather unwillingly, and they will wish to know what the future holds for them in the way of continued supplies.

During April, 1945, sittings of the Natural Gas Utilities Board, opinions were given by three engineers and geologists, respecting gas reserves in the province of Alberta, at least in areas tributary to the Calgary-Lethbridge pipe line and tributary to the Viking-Edmonton pipe line. In Table 1 are listed the maximum and minimum opinions for each field connected to these two systems and there is added mention of other fields in use, served by short pipe lines. Other possible fields have not been brought into account, except Princess. This field was considered by witnesses at the sittings as a fairly early possible connection to the Calgary system, and for which estimates were submitted regarding probable reserves. Table 1 also contains some pertinent data on the fields listed.

Estimation of Reserves

The estimation of gas reserves normally should be a more accurate process than estimation of oil reserves. Two general lines of attack are possible: (1) From the thicknes of the producing horizon, area of the field, percent porosity and measured pressure. (2) Production per pound of pressure drop, with corrections for temperature and deviation, and allowance for gas remaining when pressure become too low for continued commercial operation.

The first basis of estimation fails when the thickness, porosity, area and average pressure are not known. The second method fails when production is not accurately known, when edgewater advance reduces the size of the container to an unknown degree, or when permeability is so low that measured pressures do not reflect actual formation pressure. These factors will be touched on for each of the fields listed, together with a picture of the consumption rates existing under wartime conditions and under peacetime conditions as seen in the last prewar year.

Calgary-Lethbridge System.—Supplied from Turner Valley, with Bow Island and Foremost connected and the possibility of Princess, Jumping Pound and perhaps other future connections. Consumption in 1944, not including Alberta Nitrogen Plant, 12 million mcf. Field consumption including Alberta Nitrogen Plant 11 million mcf. Waste including loss in scrubbing and extraction of natural gasoline, 18 million mcf. Action is being taken to reduce waste by repressuring the Turner Valley gas cap and Bow Island field but it is not expected that all waste can be avoided. Probably 10 percent of withdrawals can be written off for extraction of undesired and liquefiable fractions. Field demand will diminish rapidly with cessation of drilling, and the demand for Alberta Nitrogen Products cannot be predicted as yet. At present it is of the order of 3.3 million mcf per year.

Prewar demand for the system, including gas transported for the Imperial Refinery was about 7.5 million mcf per year, of which about 1¼ million mcf was for the refinery and the balance for consumers purchasing gas from the gas company. Postwar consumption by the refinery cannot be forecast very accurately, as it depends on throughput of oil, and the use made of refinery gas derived from cracking oil.

Domestic consumption can be forecast quite accurately for a year of average temperature, commercial consumption can be forecast almost as accurately, while industrial demand is to some extent dependent on business conditions. For the purpose of this article, and looking forward for perhaps ten years, it seems fair to estimate that the average demand to supply gas company customers and the refinery will be of the order of 8 million mcf per year. When considering Turner Valley as a source of supply, as drilling becomes completed, but while oil is still being produced and handled to Calgary, and absorption plants operated, gas will be required for operation of this field and there will be some unavoidable waste from wells where it is not economically feasible to use the gas. There will be shrinkage on extraction of hydrogen sulphide, carbon dioxide and condensible hydrocarbons.

The various operators have submitted estimates covering these items and the general feeling on perusing these estimates and an outline of the equipment installed to meet the situation, suggests that while Turner Valley is operated the total demand will be of the order of 12 million mcf annually, including unavoidable waste, from the estimated useful reserves of from 300 to 400 million mcf. But in considering fields operated primarily for supply of the gas market, 8 million mcf per year will roughly cover the fuel demand of the system.

In any field the rate at which gas can safely be drawn decreases to some extent with field pressure, and it is to be expected that the number of years life quoted will not imply that full peak loads can be drawn up to the final year of life and that further production will then cease. Rather, auxiliary sources must start feeding gas to the system at some point preceding exhaustion of a field. However, the picture of years life from each field gives a useful way of looking into the approximate period during which gas will be available. On this basis, the Turner Valley reserves, variously estimated at 300 to 400 million mcf, should be adequate to cover fuel demand in the Calgary-Lethbridge system for 25 to 33 years. By adding the reserves stored in Bow Island and existing naturally in Foremost field, totalling 30 to 40 million mcf, and reverting to 8 million mcf annual demand, Turner Valley life can be lengthened four or five years. Princess, with from 40 to 100 million mcf, would extend the life another five to twelve years if connected to the system.

These sources would provide anywhere from 34 to 50 years supply if no gas is used for chemical purposes and if waste is no greater than estimated or proportionally shorter life if withdrawals are so increased. Added new sources would lengthen the life of the system, if and when developed and connected. Before examining other distribution systems, the estimates of the fields now connected to the Calgary system and tributary to it, but not connected, will be reviewed.

Turner Valley.—At the April sittings of the Natural Gas Utilities Board, experts presented independent estimates, including remaining reserves in the gas cap and gas in solution in oil. Dr. D. L. Katz used the material balance method and others used various methods for gas in solution in oil. Production per pound of pressure drop was the general basis for estimation of the gas cap. The estimates ranged from about 300 to 400 million mcf remaining as at the start of 1945.

Bow Island.—The field had an initial pressure of about 800 pounds per square inch, and from 1912 to 1928 was exhausted to about 200 with advance of water, which reduced the effective size of the reservoir. From 1930 to 1939 gas was injected. The quantity injected is known and the residual gas as of 1928 has been estimated.

Foremost.—The area has been fairly well delineated to outline a small field. Withdrawals have been small and the pressure drop has been assumed to be unaffected by advance of water. If water has advanced to maintain pressure, the estimates of reserves are high.

Princess.—Reserves in Princess could be fed to the system by a pipe a little shorter than 60 miles, measured from a gathering line to a suitable point near Bow Island. The gas probably would be passed through separators to remove any easily condensible liquids, and might yield a little condensate of hydrocarbons and a little water, but would not require srubbing, as hydrogen sulphide is not present.

Standard Oil Company of California controls most of the field, and engineers in its employ estimated variously that the so-called Sunburst sand, or basal Lower Cretaceous, contains reserves of 72 to 138 million mcf. John Galloway, executive vice president of the company, accepted a median value of 100 million mcf as certain reserves, and felt that from other

TABLE 1

FIELD	Year First Used	Initial Pressure p.s.i.	Latest Available Pressure p.s.i.	Produced MMMcf* to End 1944	Reserves to Start 1945, MMMcf		REMARKS
					Max.	Min.	
Turner Valley	1924	Variable with Depth		1,329	400	300	
Kinsella	1940	750	693	14	600	130	
Viking	1923	733	509	55		75	
Medicine Hat	1890	645	300	125	125	75	
Redcliff			510[a]				[a] New part of field.
Bow Island	1912	800	565[r]	34	20[r]	15	[r] Repressured.
Foremost	1923	660	584	4	20	15	
Princess	1940	1500 or more	1500 or more	small	100[e]	40	[e] Average of several estimates by company most active. Covers only Sunburst zone.
Wainwright (Fabyan)	1926	740	525	2	6	4	
Vermilion	1941	?	?	0.5	2	1	
Brooks	1910	350?	?	1	2	1	
Range	1930	?	nil	1.3	nil		
Suffield, Tilley Wetaskiwin	....	....	....	small	?	?	
Total	....	....	....	1565	1275	656	

* MMMcf—millions of Mcf, or billions of cubic feet.

horizons in the same general area additional gas can be drawn and its quantity may be of an order as great as the Sunburst gas, though its quality is not so good owing to a higher percentage of inert fractions.

J. B. Webb, geologist for another company, estimated that the Sunburst zone in Princess contains about 80 million mcf, but owing to presence of water either within the producing horizon or very close below it, only half the gas present could be produced economically for market. Both estimates were based on area, porosity, thickness and pressure and were closely enough in agreement as to quantity, the only real difference being in probable ultimate recovery.

S. E. Slipper, consulting geologist, looks for a considerable gas development from the Bow Island sand in this general area, a possibility not included by Galloway or Webb. At all events, there is a feeling from the evidence presented that the greater of the two limits given in Table 1 should be considered quite possible of fulfillment, if not from the Sunburst horizon, at least from all possible horizons.

Sweetgrass Hills.—This area has not been included in Table 1, but it is a possibility that should be kept in view. Range 1 (drilled as Rogers Imperial) was completed in 1924 as "the biggest gas well in Canada," with open flow estimated at 50,000 mcf per day. Gas came from three horizons, and the lowest (top of the Palaeozoic) contained hydrogen sulphide, which was plugged off. After some years a pipe line was laid to Montana and gas was sold between 1930 and 1939, when the well was depleted. Rates of withdrawal were very moderate, and only about 1.3 million mcf was marketed during its life. Two other wells were drilled in hope of increasing the reserves, one of them ¾-mile southwest and one about 1¼ miles southeast, but neither produced gas.

Mayland Southern, some distance to the east, found a big gas flow, but a well a little over a mile northeast failed to find gas. Here it was quite apparent that an igneous dyke separated the two wells.

Gas Found

Large flows of gas have been found also in a well drilled by McColl-Frontenac, in the next township east of Mayland Southern, and by a well drilled by Imperial Oil west of Range 1. Some of these gas occurrences may some day be piped to a market. There is a feeling that the large batholith which caused the uplift of the Sweetgrass Hills, has been responsible for many igneous dykes and sills that break the region up into rather small pockets, and prevent migration of hydrocarbons, while presumably increasing porosity of sands from bending and fracturing caused by tension and compression stresses. Thus there are wells that yield gas at a high rate, but which have very modest reserves. When gas is very urgently needed, a drilling program may develop enough reserves in this area to warrant piping the gas to market, and the natural market at present appears to be at the Foremost end of the pipe line to Calgary.

Range 1 has been listed as an exhausted well but problematic reserves in the general area have not been included, although one of the witnesses at the April sitting ventured a guess that there may be 25 million mcf available.

Jumping Pound.—A single well has been completed as a producer, and a comprehensive program has been drawn up for developing the field. Surface geology and a seismic survey together with knowledge gained from the one producer, suggest that the field is not likely to contain as much gas as was originally in Turner Valley. It is considerably deeper than Turner Valley producing zones and will be more costly to develop. About 25 miles of pipe line would connect it from gathering lines to Calgary. Another year or two will be needed before even a preliminary estimate of its gas and oil reserves will be possible. Should it contain gas reseres at all comparable with those remaining in Turner Valley, an entirely new light would be put on the desirability of expanding chemical use of gas.

Edmonton System.—Consumption of the system in 1944 was about 7 million mcf or double the 1939 consumption. This year is expected to show a 20 percent increase over 1944. With the end of the war just past, one must speculate somewhat on postwar load and analyze conditions. Much coal has been mined in and immediately adjoining Edmonton. Low in grade with high moisture content, it was not an ideal fuel, but it was cheap and on a heat unit basis was competitive with gas. Moreover, Edmonton population was so dispersed that gas distribution went only to the more closely built areas, and many persons desirous of using gas could not do so because the mains did not reach them. With wartime shortage of manpower the mines have not been operated as fully as in peacetime.

Construction of the Alaska highway, the Canol project, and airports placed a very heavy load on all existing accommodations and required many new residences and office buildings. Gas distribution mains have been laid to take care of new construction and have incidentally served residences that were formerly off the mains. Some of the wartime load has gone to industries directly connected with war effort. Another part of the load has gone to the air training schools, to heat barracks and hangars. These distinctly wartime demands will disappear, but observers most qualified to know, believe that the postwar load will not recede greatly from present consumption rates. Looking ahead ten years, it is probable the demand will be greater than the wartime peak.

Domestic consumers will revert most unwillingly to coal, and then only if pressure of low income or lack of gas supply makes such reversion imperative. Edmonton may be expected to grow in population, thus causing some growth in gas demand, and some industrial use of coal is likely to be replaced by gas.

Viking-Kinsella Reserves.—S. E. Slipper, in his evidence at the April sittings referred to, considered the two fields will yield 600 million mcf. In this estimate he frankly included not only the presently developed area, but also an undeveloped area considerably greater than has been proven by producing wells.

J. B. Webb, in evidence at the same sittings, placed an estimate of proven reserves of the order of 205 million mcf. Viking field, with about 34 square miles proven and 18 wells spaced in general on a 1-mile distance between wells, with a central area on about ½-mile spacing, seems to have about 75 million mcf remaining above an estimated abandonment pressure of 100 pounds. Kinsella field, with about 19 wells capable of producing and most of them on about 1-mile spacing, would appear to contain 130 million mcf above an estimated abandonment pressure of 100 pounds, based on production per pound pressure decline.

Since Kinsella field is by no means fully developed, Webb's estimate must be considered a minimum, and a yield somewhat greater may be expected on more complete development. Slipper's estimate is entered as a maximum for the two fields. It is greater than developed reserves, but may be lower than potential reserves. If it is supposed that the annual demand on the system will average 9 million mcf over the future life of the two fields, there remains 22 years minimum life or up to three times that if the maximum estimate of reserves is found to be justified.

Athabaska Reserves.—An area extending from the town of Athabaska northward, both up the river to the northwest and down river to the northeast, has shown large flows of gas in wells drilled for oil. There is good reason for supposing that when additional supplies are needed for Edmonton, quite a good reserve may be developed, although there is inadequate information on which to make any estimate of actual quantities.

Having touched on the Calgary-Lethbridge and Edmonton systems, and before going on to other systems, it should be remarked that the fields mentioned do not exhaust the possible sources, but before we may expect exploration for gas as distinct from exploration for oil, and development of gas discoveries to a point where estimates of reserves are possible, we must be nearer the actual need of using other fields. Slipper points out, "it is seldom that anyone develops a gas field for any length of time before it is required, because it ties up capital for an unknown time in the future and it also places an intolerable burden of rental charges on the company that is trying to protect the acreage." He also suggests that when decline in delivery capacity of Turner Valley makes it necessary to seek a supply elsewhere, a pipe line connecting the Calgary and Edmonton systems would make the Viking and Kinsella fields and other potential supplies in central Alberta available to Calgary.

Extension Proposed

A proposal to extend the Viking-Edmonton system to serve towns as far south as Red Deer was made several years ago but had to be postponed owing to wartime shortage of steel. Continuation of this proposed line southward from Red Deer to Calgary would pick up connections in the towns along the route, and if the pipe was made large enough, there might be advantages in permitting a more flexible and efficient handling of problems connected with surplus gas produced with oil in Turner Valley.

Reserves in Viking and Kinsella would be kept more nearly intact until Turner Valley fails to produce surplus gas. It would have been a better idea 15 years ago when Turner Valley gas reserves were more nearly 1600 or 1700 million mcf, but the question now, as then, hinges on who is to pay the cost of the line. Some of the cost of the line would be absorbed by new business.

This proposal has been carefully studied, but without any announced proposal to carry it out. Compressor equipment in operation in Turner Valley, makes this proposal less valid then would have been the case a few years ago, and conservation of Turner Valley surplus gas dependent on a connection between Edmonton and Calgary is no longer to be expected.

Medicine Hat-Redcliff.—Supplied by wells within and immediately surround-

ing the populated areas. Records of gas actually used are sadly deficient, as only a portion of the gas has ever been metered, and very rough estimates of unmetered consumption are based only on quantities of brick and similar products turned out. In addition it is known that there have been serious losses from defective wells and pipe lines. From about 1890 to 1927, we have no estimates of consumption made currently. The figure of 125 million mcf produced is by no means accurate. Other engineers have guessed that consumption has totalled about 100 million mcf, in which we concur roughly, and we have added 25 percent to cover probable leakage from defective wells and pipe lines.

Variable pressures at wells close together may be due to liquid and mud load, in spite of the usual practice of giving wells a brief blow-down before closing for a 24-hour pressure test. However, the range of pressure is great enough to suggest a very low permeability in the sand. To confirm this impression, new wells four to six miles northeast of the city have recently shown initial closed pressure of 525 pounds, with pressure gradients as great as 60 pounds per mile. The initial pressure in the center of the city was reported as 645 pounds in 1890, so it is possible that there has been a slow movement of gas from the northeast.

In view of the apparently low permeability, and lack of definition respecting withdrawals, the method of estimating based on production per pound pressure drop fails. Most wells have stopped drilling when they penetrated the top of the gas sand, so the thickness of the sand is conjectural, though probably not great. Lack of cores of the sand itself leaves the porosity a doubtful item. Hume points out (Oil and Gas in Western Canada, second edition, page 149) that wells at Dauntless and Dunmore, about six miles south and southeast of the center of the city, appear to be near the limit of the field in those directions. On the other hand, the westerly, northerly and particularly northeasterly limits have not been defined by wells. Thus data for estimation based on area, porosity, thickness and pressure are lacking, and there seems to be no exact mathematical basis for estimating reserves.

It can only be hoped that there will be enough gas to cover another 20 to 30 years future supply on the present scale of about 4 million mcf per year or say 75 to 125 million mcf. In making this estimate it must be qualified by the opinion that if gas is to last so long as suggested, leaks from wells and mains must not be permitted, and there must be economy of use. Long before the end of the suggested period of life there will be difficulty in meeting peak loads, and further development will be needed, in the course of which additional information will be gained.

In speaking of economy of use, note that the Dominion Glass Company, operating at Redcliff, reports a reduction of 50 percent in demand per ton of glass manufactured on metering air used for combustion, and at the same time obtained a more uniform product.

Other Distribution Systems.—Several small centers supplied from local wells are listed in Table 1. Reserves for these small centers are only roughly estimated from scanty information so that the future of the individual distribution systems may be inaccurate, but the overall picture for the province is not greatly influenced.

The only industry now operating in the province in which natural gas is used for purposes other than heat is the Alberta Nitrogen Company plant. Built as a war supplies plant for the production of anhydrous ammonia and ammonium nitrate, for use in explosives, it started operation in August, 1941. Originally conceived as a reserve plant to be used fully if British plants should be put out of action by enemy bombing, it was gradually brought up to its present capacity. British plants got through the blitz in better shape than was anticipated, and ammonia products were not greatly needed at this distance for explosives manufacture. There arose, however, need for increased production of fertilizer. Ammonium nitrate is a useful fertilizer, as all of its nitrogen can be used by plant growth. However, the salt tends to congeal into a solid rock-like mass when put into bags, and the problem of turning it out in a form easily used by farmers had to be solved. Engineers in this plant worked out the technique with great credit to themselves, and much of the output of the plant has been in the form of shot size granules that can be sown like seed. There is prospect of continued demand for fertilizer for some time, the plant may be kept in operation.

In the manufacture of ammonia there is quite a byproduct of carbon dioxide, and many things could follow from ammonia and carbon dioxide as a start, particularly when free hydrogen is also available. Such products as synthetic oil, urea for wood preserving, alcohols, acetic acid, nitric acid, and a host of items ranging to drugs of infinite variety, plastics and synthetic rubber. Carbon black is a product that has been made largely from natural gas, but it is so wasteful of the valuable resource that it should be considered only as a last resort. A start has been made at chemical use of gas in which the properties of this natural resource are much more fully utilized than in making carbon black. Whether this start will be followed by continued use in peace time, or whether it will be discontinued or amplified is not the purpose of this paper to argue, but the inventory of reserves will perhaps assist in the decisions to be reached.

North Carolina Becomes Focal Point Of Oil Search After 20-Year Interval

By WELDON B. HILL, Staff Writer

AFTER an interval of more than 20 years, North Carolina has beecome the focal point of an extensive search for petroleum. Recent lease and geophysical activity indicate a wildcat drilling program is being outlined for the extreme eastern part of the state, during the latter part of 1945 and in 1946.

Because of geologic formations a major portion of the state has been considered void of oil deposits. However, the success of wildcat drilling in Mississippi, Alabama and Florida has caused geologists to make a thorough study of the possibilities of oil production on the eastern seaboard. These studies have brought about a lease play which has extended up the Atlantic Coast from Florida through the Carolinas to Maryland and Delaware.

The first test for oil in North Carolina was drilled in 1924 by Great Lake Oil Company on the Bryant farm near Havelock, just off the shores of Lake Ellis in Craven County. This test was abandoned in granite at 2415 feet.

Since the abandonment of the Havelock well no tests were drilled in North Carolina until this year. The drilling of the second test was preceded by much lease and geophysical work.

Estimates indicate there now are approximately 2,700,000 acres under lease in the extreme eastern part of the state. Largest leaseholders are Standard Oil Company (New Jersey), Coastal Plains Company, and Tide Water Petroleum and Gas Company of North Carolina. The latter two firms were organized by individuals in North Carolina.

Other leases are held by Sinclair Prairie Oil Company, Gulf Oil Corporation and Shell Oil Company. Both state and private leases were obtained for an average of 10 cents per acre and 10-cent rentals. Only one royalty trade has been reported.

Coastal Plains Company has approximately 600,000 acres in both state and private leases. Six blocks averaging from 10,000 to 26,000 acres each were turned over to Floyd L. Karsten of Houston for the drilling of a test on each block. The blocks are in Duplin, Pender, Jones, Onslow, Carteret, Pamlico, and Craven counties in the extreme southeastern part of the state near the Atlantic Coast.

Karsten has drilled the first test on the acreage of the Coastal Plains Company and this well became the second test for oil drilled in North Carolina. The well was the Alice and Gordon Laughton 1 near North Morehead City in Carteret County.

The test was drilled to 4044 feet where it was abandoned in granite at 4021-23 feet. Elevation was 17 feet, derrick floor. Laughton 1 topped the Trend Marl Miocene of the Mundorff at 335-374 feet. Gray and buff limestone and sandy limestone were present down to 1058 feet. Top of the Cretaceous was called at 1398 feet, although there is a possibility the top might have been higher. Reddish grey and mottled clays, sands, and sandy clays were logged from 2262 feet to 3678 feet, probably in the Tuscaloosa or younger formation.

To drill the test, Karsten moved in a rotary rig from Louisiana. Drilling mostly in sandy limestone, 12 rock bits were used below the 10¾-inch surface pipe set at 350 feet. Drilling time was about 60 days.

Geologists indicate that only the eastern area of North Carolina on the Atlantic Coast now is considered favorable for oil production.

The geological outcrops from the town of Wilson westward are granites and hard crystalline metamorphosed sediments. The outcrop in eastern North Carolina is a recent formation. Two tests have found the Miocene, Eocene and

STANDARD OF NEW JERSEY
ATLANTIC OCEAN
NORTHAMPTON
WARREN
HALIFAX
HERTFORD
PERQUIMANS
CHOWAN
PASQUOTANK
NASH
EDGECOMBE
WASHINGTON
TYRRELL
DARE
MARTIN
BERTIE
ALBEMARLE SOUND
WILSON
GREENE
PITT
BEAUFORT
HYDE
CRAVEN
PAMLICO
WAYNE
LENDIR
JONES
ONSLOW
CARTERET
SAMPSON
DUPLIN
PENDER
NEW HANOVER
BRUNSWICK
Cape Hatteras
Ocracoke I.
Portsmouth I.
Cape Lookout
Cape Fear
Smith I.
Wrightsville Beach
Wilmington
Southport
Morehead City
New Bern
Kinston
Goldsboro
Greenville
Washington
Elizabeth City
Edenton
Roanoke Rapids
Weldon
Rocky Mount
Tarboro
Williamston
Plymouth
Jacksonville
Swansboro
Clinton
Warsaw
Kenansville
Whiteville
Lumberton
Fairmont
Elizabethtown
Tabor City
Chadbourn
Bolivia
Shallotte
Supply
Calabash
Southport
Oak Island
Sunset Beach
Ocean Isle Beach
Holden Beach
Lockwoods Folly
Shallotte Inlet
Lake Waccamaw
Lake Phelps
Pungo Lake
Mattamuskeet Lake
Pamlico Sound
Albemarle Sound
Currituck Sound
Roanoke Sound
Core Sound
Bogue Sound
Back Sound
Onslow Bay
Raleigh
Durham
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Fayetteville
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Greensboro
High Point
Winston-Salem
Gastonia
Rocky Mount
Wilson
Henderson
Oxford
Roxboro
Burlington
Reidsville
Danville
Martinsville
Statesville
Hickory
Lenoir
Morganton
Shelby
Rutherfordton
Forest City
Marion
Spruce Pine
Boone
Wilkesboro
North Wilkesboro
Mount Airy
Elkin
Sparta
Jefferson
West Jefferson
Sparta
Galax
Independence
Hillsville
Wytheville
Bristol
Kingsport
Johnson City
Elizabethton
Erwin
Newport
Waynesville
Sylva
Bryson City
Andrews
Murphy
Robbinsville
Franklin
Highlands
Cashiers
Brevard
Hendersonville
Saluda
Tryon
Columbus
Lake Lure
Chimney Rock
Rutherfordton
Spindale
Forest City
Shelby
Kings Mountain
Gastonia
Belmont
Mount Holly
Cherryville
Lincolnton
Newton
Conover
Hickory
Taylorsville
Statesville
Mooresville
Davidson
Cornelius
Huntersville
Concord
Kannapolis
Salisbury
Lexington
Thomasville
High Point
Archdale
Trinity
Randleman
Asheboro
Sanford
Pittsboro
Siler City
Graham
Mebane
Hillsborough
Carrboro
Chapel Hill
Durham
Roxboro
Yanceyville
Milton
Leaksville
Eden
Madison
Mayodan
Stoneville
Reidsville
Eden
Draper
Leaksville
Spray
Mayodan
Madison
Stoneville
Reidsville
Danville
Martinsville
Collinsville
Axton
Fieldale
Ridgeway
Stuart
Martinsville
Bassett
Henry
Patrick
Floyd
Check
Willis
Hillsville
Galax
Independence
Sparta
Jefferson
West Jefferson
Boone
Blowing Rock
Linville
Banner Elk
Newland
Spruce Pine
Burnsville
Micaville
Bakersville
Roan Mountain
Elizabethton
Johnson City
Kingsport
Bristol
Abingdon
Damascus
Mountain City

By HUBERT GUYOD†

CALIPER WELL LOGGING

Part 4

Caving Pattern in Abnormal Shales

In many cases caliper logs are of value for helping locate petroleum reservoirs. A few practical remarks regarding this unusual application of caliper data are offered in this article.

ABNORMAL caving* seems to be associated with shales which carry gas and, probably, other hydrocarbons also, in noticeable quantities. It might therefore be interesting to attempt correlation of the amount of abnormal caving observed in shales, with the hydrocarbon concentration found in this formation. A simple manner of doing so is to compare the caving patterns revealed by caliper logs to the fundamental hydrocarbon patterns given by geochemical logs.

A geochemical log is a graph giving the hydrocarbon content of the formations traversed by a bore hole, in terms of depth. The data is obtained by analysis of cores or cuttings.

Not only the presence or absence of a nearby petroleum reservoir can be inferred from a geochemical log, but additional information also can be secured frequently from a study of the shape of the graph.

The log of a well situated near the center of the reservoir exhibits a short hydrocarbon pattern in which the maximum is usually located immediately above the reservoir (Curve 1, Figure 1).

In wells located near the edge of the pool, the hydrocarbon pattern is usually spread on a much longer section above the reservoir (Curve 2).

In the case of wells situated far from the pool, no significant hydrocarbon values are found (Curve 3).

Hydrocarbons in appreciable quantities are also found in the shales situated below the reservoir. Their exact pattern, however, is not very well known because of insufficient data, but it is likely that it follows more simple rules.

From the information available at present it is possible to draw schematically the approximate hydrocarbon pattern existing in the vicinity of an oil or gas accumulation. This is shown in vertical cross-section on Figure 2.

Several theories have been advanced to explain the dearth of hydrocarbons above the reservoir, such as compaction or mineralization of the sediments overlying petroleum reservoirs, or the presence of a relatively impervious shale. The question, however, probably has not been definitely settled as yet.

Not only the location of the point of observation, but also the nature of the petroleum seems to control the hydrocarbon pattern. For instance, in shales situated above sands containing oil of high specific gravity, the hydrocarbon concentration is generally much smaller than above deposits containing lighter hydrocarbons.

If abnormal caving were caused directly by the presence of hydrocarbons in the shale, the patterns illustrated by Figures 1 and 2 should be seen also on caliper logs. This, however, has not been found to be generally true.

First, the caving pattern, in a given field, although varying from one well to another, does not seem to be controlled by the location of the well with respect to the limits of the pool. Abnormal cavings several hundred feet long have been found in wells located at the center of a structure, while there are numerous cases where abnormal cavings about 50 feet long exist in wells drilled close to the edges of a pool.

Second, no abnormal caving is usually found below the bottom of the petroleum zone. Of course, if this zone comprises several reservoirs, there usually is some abnormal caving below each reservoir, but usually there is none below the deepest one. A typical example of this condition can be seen on Figure 3, which reproduces the log of a well of the Katy field (Texas Gulf Coast). In this well, all sands below 6350 feet contain oil or gas.

Third, no relation between the gravity of the oil and the amount of caving has been observed.

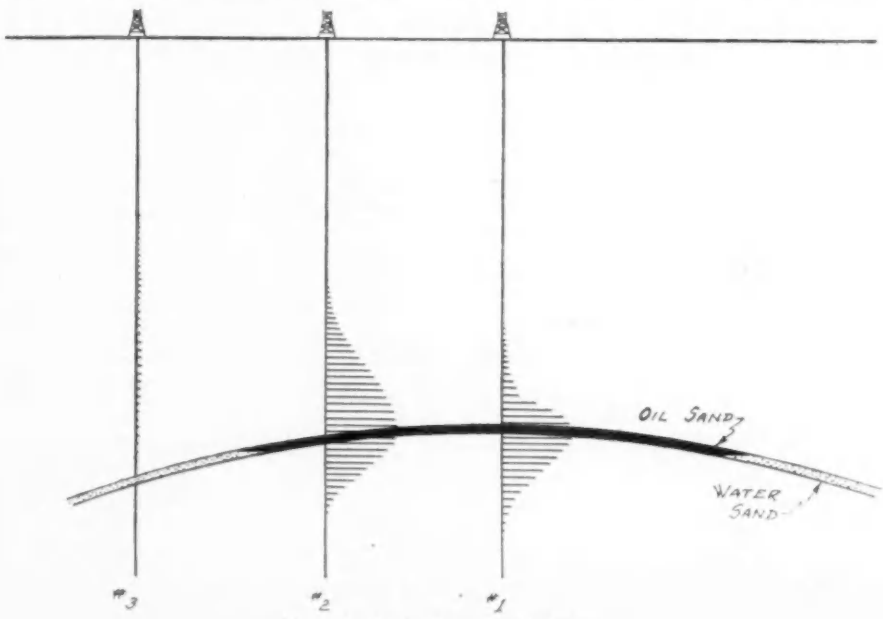

Figure 1. Typical geochemical logs

Caving Pattern

Although there seems to be no relation between caving and hydrocarbon concentration, it might be that a certain

†The author is now a well logging consultant in Houston.

*See Part 3 of this series for the definition of the expressions used in this article.

caving pattern exists nevertheless in the vicinity of oil or gas deposits.

It has been said before that caving is reasonably uniform over a petroleum reservoir. Furthermore, in wells which are drilled close to, but outside the limits of the pool, some abnormal caving is frequently observed, but it is located higher up in the shale section. An example has been given in a preceding article and is reproduced here as Figure 4 for the convenience of the reader. In well A the sand at 5100 feet carries water, and some abnormal caving exists possibly at 4700-4900 feet. In well B, the sand at 5050 feet carries oil, and the abnormal caving is found in the bottom part of the shale section overlying the reservoir.

Another interesting example is furnished by Figure 5 in which the electric and temperature logs of three neighboring wells are reproduced. The location of these wells with reference to the limits of the pool is shown in Figure 6.

Inasmuch as the base line of a temperature log is not only tilted, but also usually crooked, it is difficult to appreciate which sections of the mud column are relatively warm or relatively cold. To facilitate the interpretation of this type of log, it is sometimes advisable to replot the graph with reference to a straight and vertical base line. This has been done in Figure 5 and the resulting graphs have been traced between the electric log and the actual temperature log.

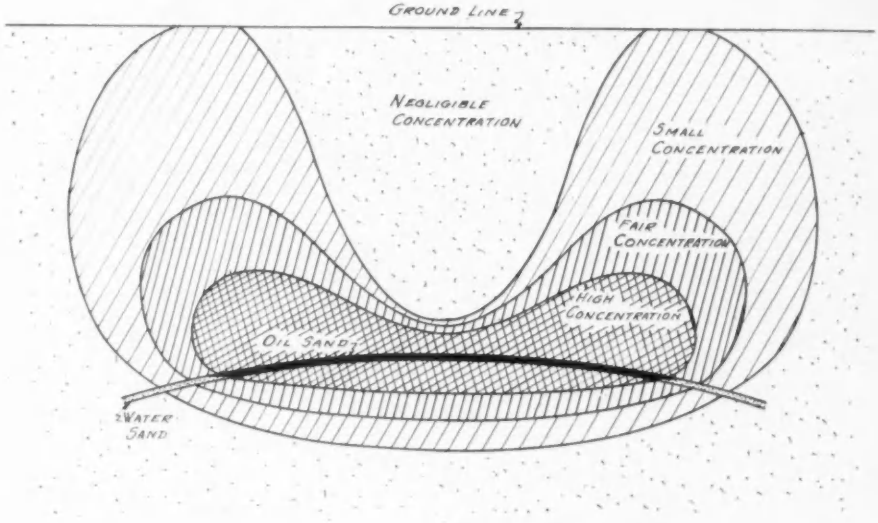

Figure 2. Approximate hydrocarbon pattern in the vicinity of a petroleum reservoir

When it is remembered that the minima of temperature logs correspond to zones of maximum hole size (this generally applies only in wells filled with drilling mud) such logs can be considered as being mirror images of qualitative caliper logs.

In well A, located outside the limits of the pool, there is apparently a considerable abnormal caving several hundred feet above the sand. In wells B and C, which are oil producers, the abnormal caving is situated immediately above the reservoir.

It is appreciated that the data available at present on dry holes is insufficient to allow formulate definite laws on the pattern displayed by abnormal caving. The foregoing examples are therefore given only as illustrations to help those who might be interested in

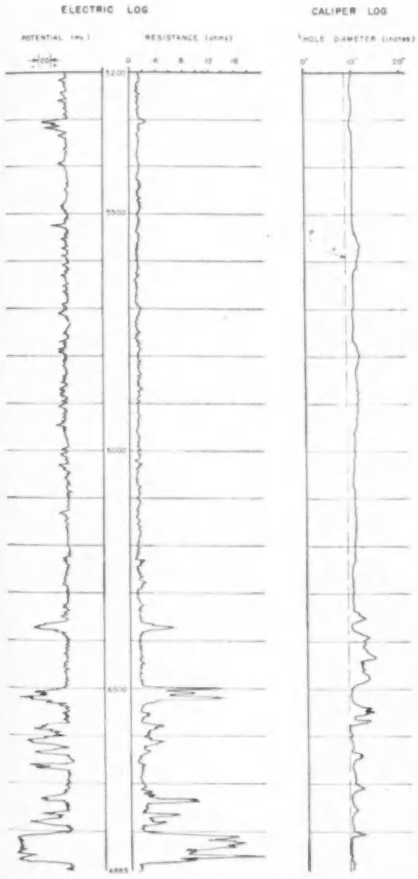

Figure 3 (above). Typical caving in shales associated with a group of oil and gas sands, Katy field, Waller County, Texas.
—Courtesy Humble Oil & Refining Company

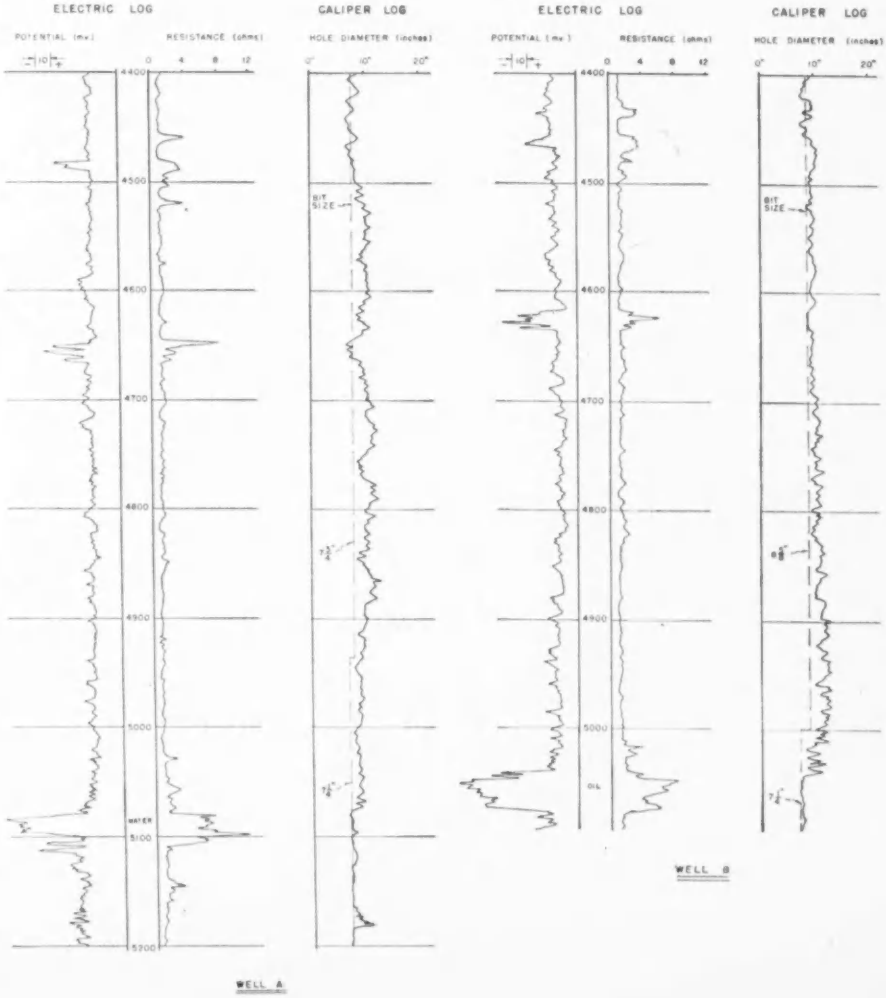

Figure 4 (right). Logs of two wells of the Weil field, Jim Hogg County, Texas.
—Courtesy Sun Oil Company

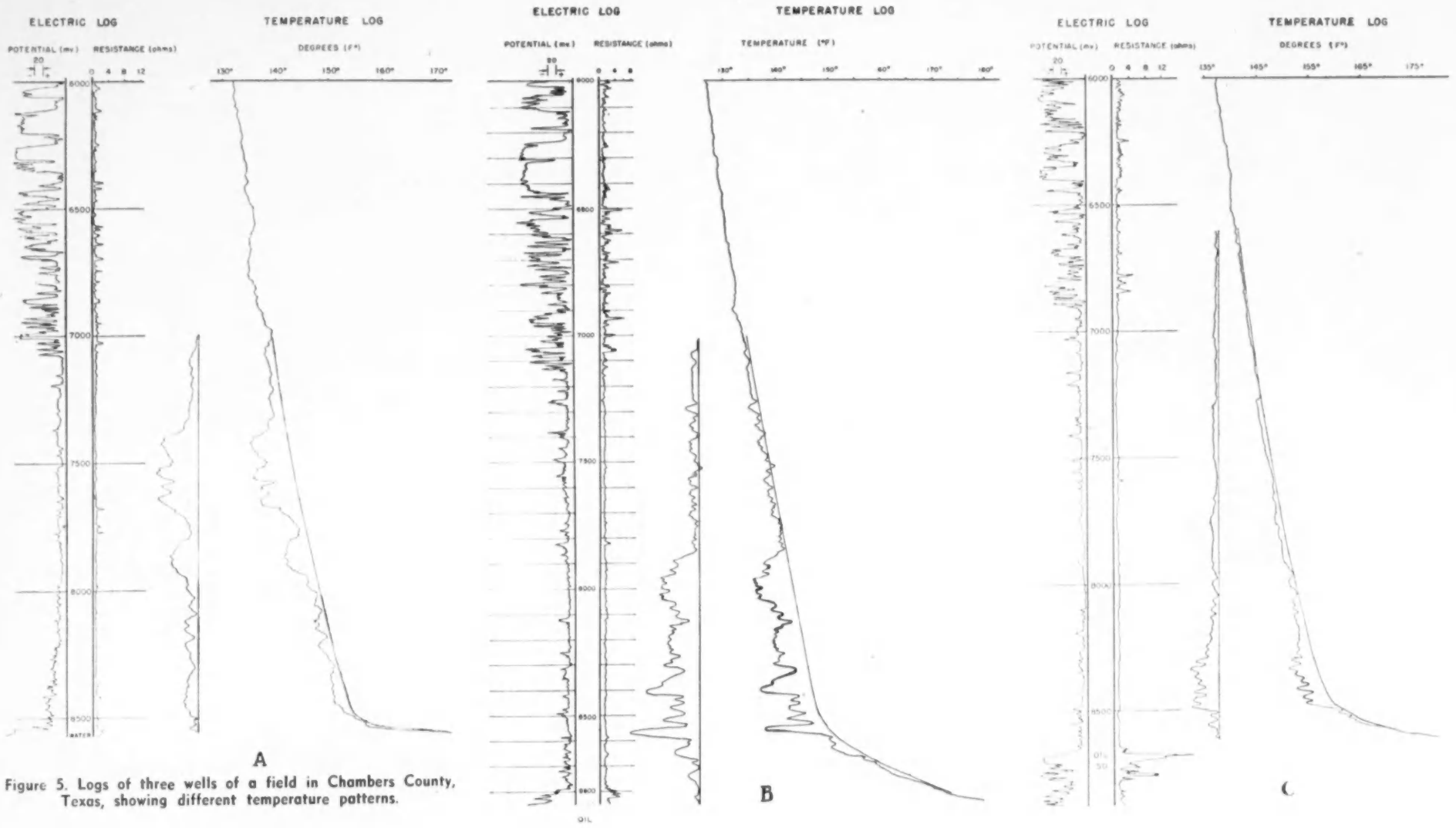

Figure 5. Logs of three wells of a field in Chambers County, Texas, showing different temperature patterns.

securing field data on the problem. It is not claimed at present that they are representative of the conditions to be found in th Gulf Coast or in other petroleum areas.

From the foregoing data it it possible to draw tentatively a very crude caving pattern in the vicinity of some hypothetical petroleum reservoir. This is shown in Figure 7. Some similarities exist between this pattern and the hydrocarbon pattern of Figure 2. This was to be expected because both phenomena have the same basic cause. There are, however, so many differences between the two patterns that it is doubtful that one might be the direct consequence of the other.

If the foregoing assumption is correct, then what is the factor which is causing abnormal caving? No answer to this interesting and important question can be given at present. Many more data are probably necessary before a satisfactory explanation can be found.

Applicability of the Method to the Location of Reservoirs

Although the mechanism of abnormal caving is not understood at present, this phenomenon can nevertheless be put to practical uses in many cases to help locate petroleum reservoirs.

In areas such as the Louisiana and Texas Gulf Coast where electric logs usually are quite reliable for the location of oil or gas sands, caliper logs probably would bring useful information in only a small number of cases. It should not be forgotten, however, that in these areas, where oil sands have

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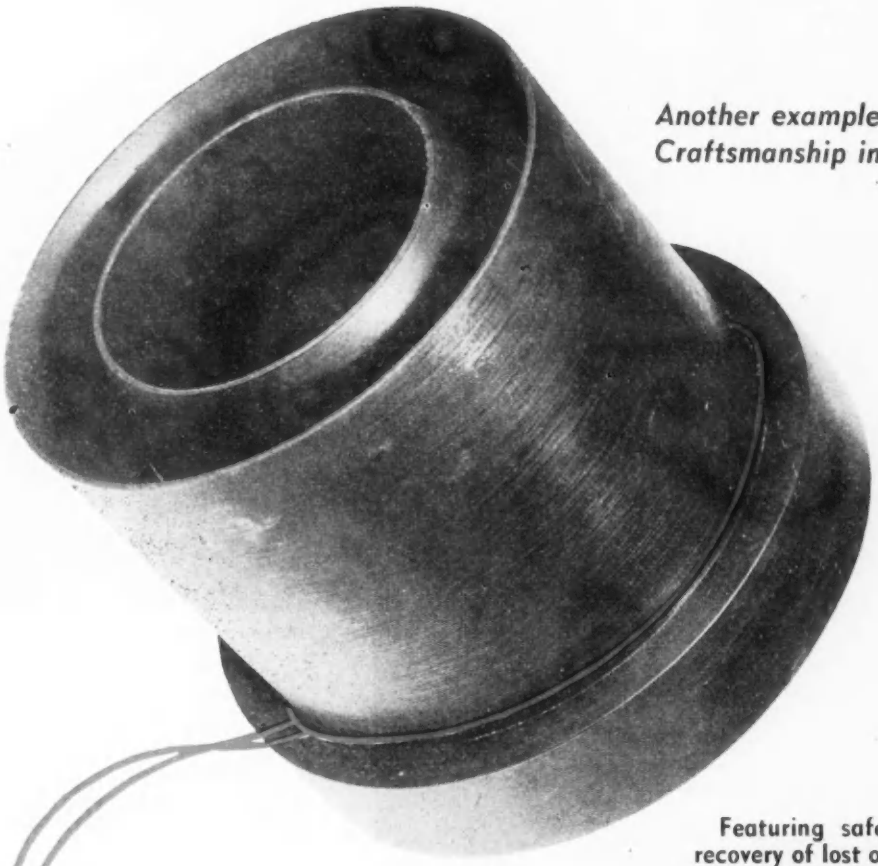

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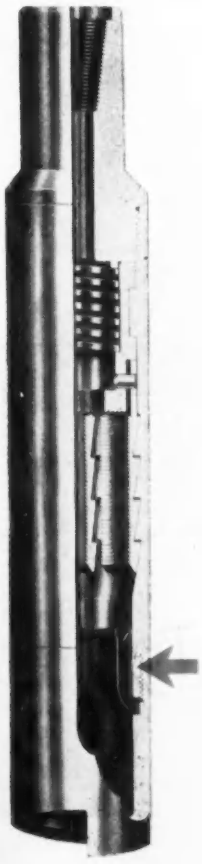

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Seismograph cable whips hot summer sun

...the jacket is NEOPRENE

Geophysical crews can't "pick" their spots to work in; as a result, the equipment they use really has to take it. It's not uncommon for them to bounce off through a marsh or string their recording lines over sharp rocks, through abrasive sands, around trees, or through thickets.

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sometimes an extremely small resistance, the interpretation of electric logs frequently is made in a very conservative manner, resulting in the occasional passing up of producible sands. In a large number of these cases, a caliper log made under proper conditions would warn the interpreter that certain sections of the electric log should be investigated more carefully than was done.

In other areas, such as South Texas, where the interpretation of electric logs is usually extremely difficult, even in field wells, caliper logs are of great value. An extensive survey has shown that, in this area, abnormal caving is as prevalent as in the other parts of the Gulf Coast.

Although no detailed study of caliper data was made outside the Gulf Coast, a rapid examination of many logs of the Mid-Continent has shown that abnormal caving above petroleum reservoirs exists there in many cases.

A Few Practical Remarks

The discussion of abnormal caving offered in Part 3 of this series, has shown that abnormal shales are best distinguished from normal shales when freshly drilled. As yet, in no case has it been observed that a measurable amount of abnormal caving would not be observed by starting the measurements too early. It seems that during the few hours necessary for the pulling out of the drill pipes and for the lowering of the logging tool, there has been sufficient caving to give a positive indication . . . assuming of course, that the bottom section of the hole is susceptible of giving abnormal caving.

In the Gulf Coast, a good distinction between the two types of shales usually can be made at any time within three days after the formation has been drilled. Depending upon the area . . . and probably also other conditions . . . the favorable time interval is frequently greater. However, until the phenomenon is better controlled, or at least better understood, it is advisable not to wait longer before securing a caliper log from the sections to be investigated.

It is true that the information given by the log is not always susceptible of positive interpretations. Nevertheless, it is obvious that the record can be of value, at least for helping determine the sands in which side wall cores should be secured.

Inasmuch as the magnitude of abnormal caving seems to be the same above oil and gas sands, caliper logs are unable at present to distinguish between these two fluids.

As time goes on, the influence of the main factors which control abnormal caving, such as mineralogical composition and physical state of the shale, angle of dip, nature and weight of the mud, will gradually be better understood, so that a more intelligent use of caliper logs can be obtained. At present, it is necessary to assemble and digest as much information as possible, and coordinate it with information available from other sources.

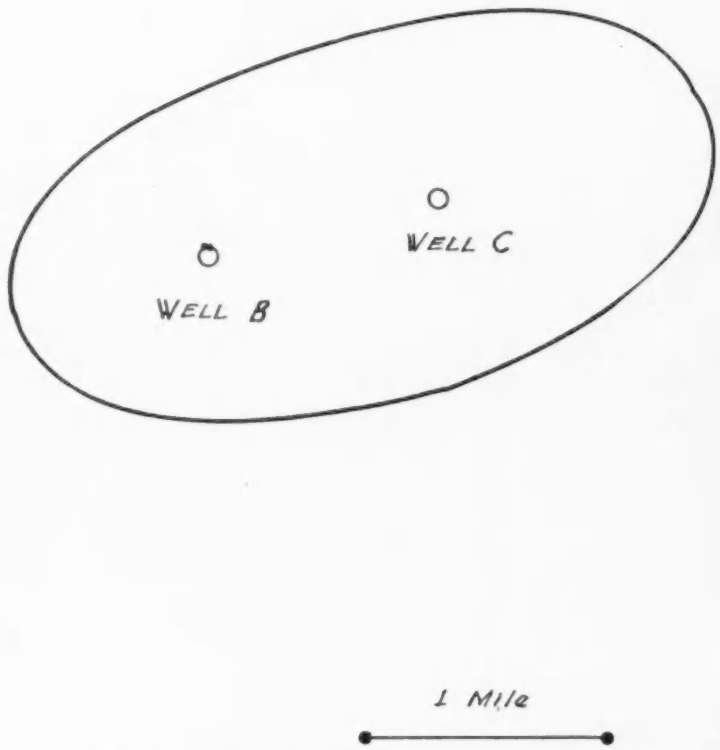


Figure 6. Approximate location of Wells A, B and C of Figure 5, with reference to the limits of the pool.

Conclusion

There is so much money involved in the drilling of a deep well that any information which is susceptible of yielding a clue on the presence of oil or gas is worth securing if the resulting expense is reasonable. For this reason it is thought that caliper data should be secured in each wildcat well, and also in field wells where electrical data alone is unable to solve the problem of fluid identification. Even if fluid information is not obtained from these data, the money invested is not lost because of the many other applications of a caliper log.

It is appreciated that the method is quite imperfect at present, and that, for the identification of fluids, it is perhaps not better than electric logs were eight years ago. Undoubtedly progress will come, and it is likely that, in the not to distant future, the regular use of caliper data in every well will not be more unusual than the present extensive use of electrical data.

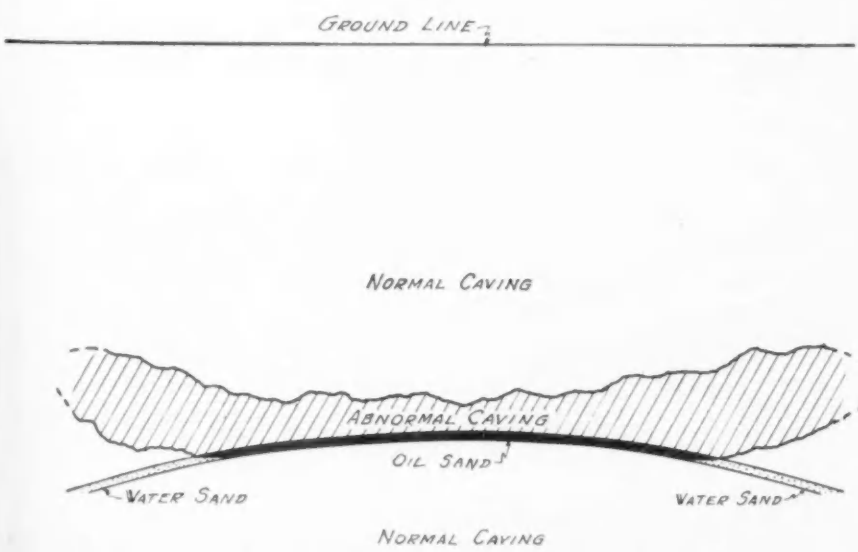


Figure 7. Possible caving pattern of abnormal shale in the vicinity of a petroleum reservoir

Acknowledgements

The data offered in this series of articles are the result of a preliminary survey initiated last year by the Halliburton organization.

The writer is greatly indebted to the many oil companies who contributed the information needed for this project, gave permission to experiment in their wells, and released for the benefit of the public the numerous logs with which these articles are illustrated. He wishes to acknowledge the cooperation of Leo Horvitz, of the Horvitz Research Laboratories, for the data given on geochemical logs. The writer is also indebted to the Halliburton Company for giving permission to publish these articles.

Laying Down Drill Pipe

By ELTON STERRETT

While the front—or lower—end of the joint of drill stem travels down the wire line seen across the upper center of the view, the other end is supported on this roller stand until just before the tool joint drops to the floor for a brief check of its descent prior to entering the chute for delivery to rack level. In the distance the racking crew may be seen aligning a joint which failed to roll properly after being released. The man in the center has a special pipe rolling device which enables one man to do the work of two or three.

USE of a tail-out line in place of the older method of supporting the lower end of a joint of drill pipe on a buggy not only relieves one man of a heavy and at times extra-hazardous job as he tries to keep ahead of the pipe as it slides down the ramp plate, but it also speeds up the work except actually latching the stand on the support and the eventual placing of the last-pulled joint against the ones already racked.

One company has gone further in the development and adaptation of the tail-out line method than some others. It uses a section of sand line as the supporting member, with turnbuckle attachments at both ends to permit accurate spotting and the maintenance of the tension which eliminates undesirable sag in the line as the "go-devil" rolls down the slope of the wire line as it carries the lower end of the joint of drill pipe. The line, wherever possible, is attached to trees or other natural anchorage at the lower end, or to a bridle on a deadman in open country. The upper end, adjacent to the rotary table, passes over a braced post which carries a pulley to permit line direction change without overloading a single strand or a few wires. The end is anchored, through turnbuckle, to a member of the substructure close up to the rotary mounting.

On the derrick floor, facing and about a foot from the steel armor on the ramp, is placed a roller unit which prevents drag of the upper end as the tail-out line carries the lower end. This unit is designed so that it may be spiked to the floor, but carries little side or end thrust, even when the end of the pipe nears the point where it leaves the roller for the short travel across the planking before the end of the box contacts the chute on its descent to ground level.

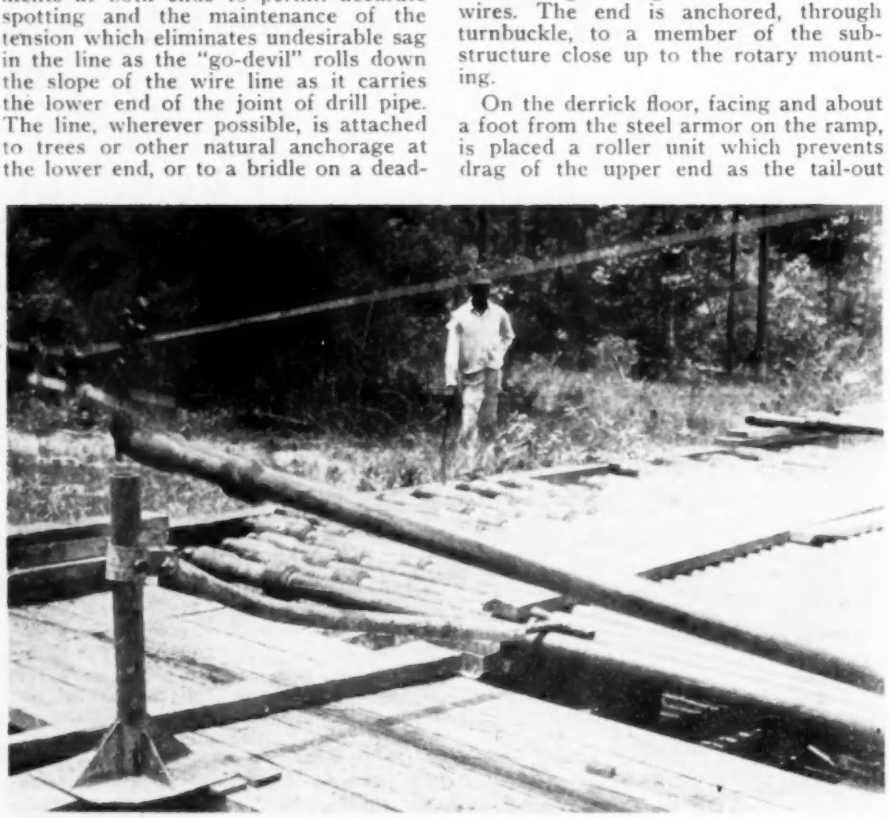
The stand is built up of simple steel flat and angle sections, each end support being about ten inches in height. Two braces, of heavy one-inch pipe, tie the tops of these stands together, and prevent spreading of the device. Bearings, mounted in the center of each top member, carry a heavy roller on which the joint of pipe is lowered by the floor man after the joint has been released by the elevators.

The bearings, with fittings for pressure lubrication, permit the roller to turn so easily that there is very little drag on the pipe, while the load, being directly over the supports, demands little in the way of anchoring to withstand the handling of even several hundred joints of stem.

To assist in placing the joints of drill pipe after they have been automatically released by the adjustable go-devil tripping device on the line, the company has devised a stand and guide which give the pipe a good start out along the timbers which separate the layers of pipe. The unit consists of a heavy pipe post, mounted on a steel base with wide footing and angle braces to insure its stability against shock. The three-inch pipe standard has holes bored through it at six-inch intervals from just above the base to near the top.

A collar, sliding on this pipe, likewise has a hole bored through it to match those in the pipe. By placing the pin through the hole or under the collar, it is possible to obtain a close adjustment of the height of the collar above the base.

Hinged to an ear projecting from this



The trip on the tail-out line has just operated the go-devil release as this joint of pipe falls free toward the guide which will direct it toward the rack and provide impetus for much of its travel. The post is drilled at 6-inch intervals, the sliding collar in the center, permitting numerous adjustments of the height of the sloping guide, to provide for various racking heights. The Tee-shaped insert at the rack bridges the gap and gives anchor to the lower end of the guide.

collar is a section of pipe, curved slightly, and extended to span the gap from the stand to the edge of the pipe stack. This pipe, sloping toward the stack, catches the drill stem as it is released by the tail-out line go-devil, forming an incline down which the pipe rolls until it contacts the string-out timbers.

To bridge the gap between the end of the pipe and the racked pipe, a short piece of smaller pipe is inserted in the end of the guide member, a tee on the end of this insert resting between adjacent joints of racked pipe and preventing displacement.

The broad base of the stand is provided with holes near the edges, so that it may be spiked to the walkway or supporting timbers to prevent shifting under vibration set up by the rapidly moving pipe joints.

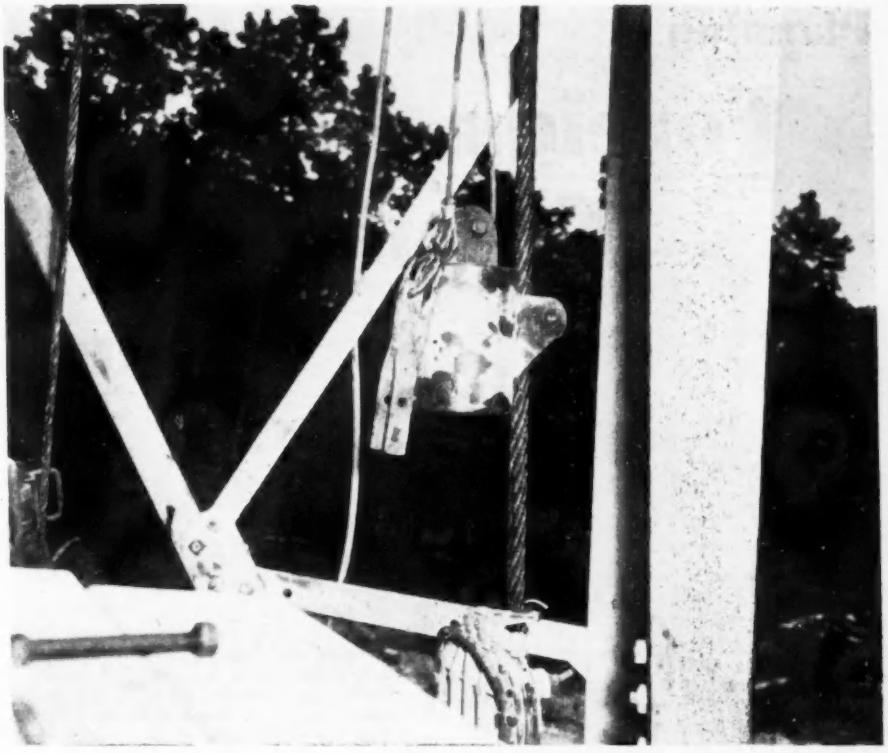
Go-Devil Return

To return the go-devil on which the lower end of the drill pipe is supported as it is run out on the lay-down line when stacking pipe, the company makes use of the conveniently located dead line as runway or guide for the counterweight.

A specially made counterweight case is fabricated from a short section of eight-inch pipe, to one side of which have been welded a pair of steel plate ears, between which is mounted a small pulley. A second pair of ears, welded to the top of the case, carry the loop in the end of the return line.

To mount, the pin holding the puller is removed, and the case slipped over the dead line; the pulley is then replaced, the counterweight line attached, and the desired height obtained by shifting the location of the loop.

In operation, only the small pulley contacts the dead line, and the amount of wear which it occasions is negligible. The slope of the line, as it is normally placed in the derrick, affords sufficient inclination or angle to guide the counterweight away from the derrick girts or braces, while the location of the pulley for the counterweight line prevents fouling on the return trip.



The go-devil counterweight utilizes the drilling dead line as guide. The ears on the device enclose a pulley which contacts the line, rolling freely as the weight operates, and avoiding any possibility of chafing or damaging that portion of the wire line. The weight is adjusted as to travel by taking up on the bight of light coring line on which it is suspended.

Rolling drill pipe across the rack when laying down a string is a chore which can become backbreaking, and which will slow down the job and add to the cost of the operation. Observing that the use of boards, bars or short sections of pipe to pry the joint along across the timber spacers allowed the joint to stop a number of times during its progress, (also ruling out the attempt to kick the joint along on account of the hazards involved) a crew member devised a pusher which enables one man to rack the pipe with only occasional aid from the others of the gang when a joint lands askew.

The pusher consists of a T-handled bar terminating in a head with a Vee notch, set at right angles to the T-handle. In the lower end device, and protruding slightly into the Vee, are two rollers, recessed behind a line across the farthest extent of the head, but set to contact the pipe wall before the frame can touch it.

The operator, leaning against the T-handle, forces the rollers against the pipe, the horizontal component of this push tending to roll the joint along the timbers. Once started, the pipe may be rolled at a brisk walk with relatively little effort, the pusher being kept in contact to snub any attempt at bouncing back when the rolling joint contacts the pipe already racked.

The handle is formed from steel sturdy enough to permit the head to be inserted under the pipe to pry it around into desired alignment before beginning to roll it across to its place against the racked units. This saves the time which otherwise would be consumed were it necessary to have at hand a bar in addition to the rolling device—and also insures that the handle remain straight so as to put the push directly behind the mounting of the two rollers which contact the pipe wall.

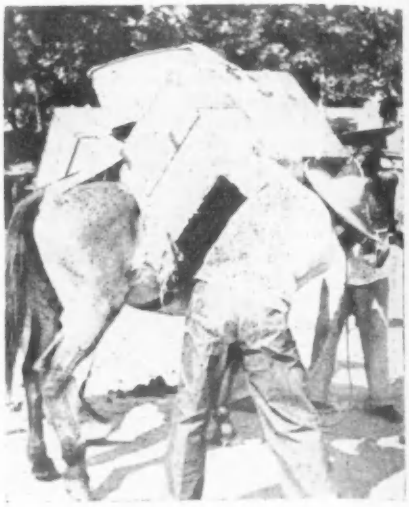
Closeup of helper with special pipe rolling device. The lower end carries a pair of rollers within a V-shaped notch, so that the pipe is contacted by rollers alone, and the push applied to the upper end of the handle is transmitted into rolling motion across the spacing timbers. The two hooked ends on the body of the roller-mounting permit the operator to guide an end of the pipe joint without need for stepping ahead of the rolling pipe.

Planning

Foreign Geophysical Parties

Part 1

By C. H. DRESBACH
Geophysical Supervisor and Assistant Chief Geologist
Western Gulf Oil Company



Field camp kitchen equipment being packed for a move from a base camp in South America.

Current and future requirements of petroleum have produced a strong demand for American personnel, equipment and techniques to be employed in the world-wide search for oil. Different, and sometimes much more difficult conditions are frequently encountered from those customarily met in the exploration for oil in the United States. A brief consideration of some of these factors is the purpose of this paper. It is concluded that while careful preliminary planning and the design of equipment in the light of accurate information on conditions to be encountered are highly vital factors, the demonstrated and trustworthy character of the personnel conducting the operations is the biggest guarantee of success in the undertaking.

IT IS rapidly becoming evident that an increasingly large percentage of the U. S. oil industry's future exploration programs will be located outside the boundaries of this country. This apparently will be true not only for the major companies but to at least some extent for some of the smaller integrated companies and larger independent producers, as well as, of course, the various contracting, consulting and service companies.

Special conditions encountered in much foriegn work make it necessary to consider many factors which are not encountered in domestic programs of geophysical exploration for oil. Although extremely difficult working conditions are frequently met in domestic operations by company and contract crews, the large store of past experience, the availability of fresh supplies, replacement or new equipment, and the proximity of the helpful home office make their surmountal more or less a matter of routine. Contrariwise, foreign operations are frequently conducted under much more difficult conditions, supplies and equipment can be secured only after long and costly delays, and the distance and inaccessibility of the home office leave practically all decisions to the party executive. While the following resume of some of the conditions and problems to be encountered may appear rather elementary and perhaps even trite to the old-time foreign operator, experience has shown that careful consideration of some significant features is sometimes overlooked by even the old hands while the pitfalls awaiting the uninitiated are so numerous as to justify extended studies.

Swimming saddle mules across a Latin-American river

Unless the majority of present-day authorities are in error the ranks of companies and operators making their first foreign exploration venture are to grow rapidly annd strongly. To them in particular these comments are directed.

For permission to present this paper special appreciation is expressed to Dr. K. C. Heald, staff geologist of the Gulf Oil Corporation, and Dr. E. A. Eckhardt, vice president and director of the Geophysical Department of Gulf Research and Development Company. All material presented is derived from the writer's personal experiences and/or contacts with other men who have been located in areas foreign to him. Opinions expressed herein are strictly those of the writer.

Likely Locations

Naturally the locations of areas or countries where foreign work is projected by various companies are ordinarily not made public. However, it appears to be the general opinion that the most active provinces will be generally as follows in very approximate order: (1) South America, and particularly the northern portion which includes Venezuela and Colombia; (2) the Near and Middle East, particularly the Persian Gulf region; (3) East Indies; (4) Canada.

Efforts to expand the list naturally could not produce a complete roster, but the following are known as countries in which geophysical investigations have been made within recent years, are now being conducted, or are contemplated within the near future (at least in near postwar years). The last classifications is based either on geological investigation ordinarily a prerequisite to geophysical activities, or in a few cases include those in which geological conditions are such that oil exploration will likely be conducted there.

Some of the countries cited are those in which only contract companies may be able to operate because of nationalization of the industry. Listed alphabetically and without regard to rank are Angola, Arabia, Australia, Austria, Bolivia, Borneo, Brazil, Burma, Canada, Chile, China, Colombia, Congo, Costa

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Rica, Cuba, Denmark, Dominincan Republic, Ecuador, Egypt, England, France, Germany, Guatemala, Haiti, Honduras, Hungary, India, Iraq, Iran, Java, Kuwait, Madagascar, Mexico, Morocco, New Guinea, New Zealand, Nicaragua, Palestine, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Roumania, Sumatra, Syria, El Salvador, Trinidad, Turkey Uruguay, Venezuela. Subsequent developments may well add the names of other countries or territories where plans and prospects are now unknown or overlooked.

It is obvious that in the countries listed above the widest possible range of physical conditions will be encountered. These may vary from sparsely settled localities in New Guinea where native labor is almost unavailable, to England, where the very density of the population hinders operations. Practically never is a geophysical program undertaken until at least reconnaissance, and usually fairly detailed, geological studies have been made. Obviously, there are large areas, such as the plains, llanos, selvas or pampas, where surface geology is handicapped by the absense of surface exposures and of outcrops in adjacent uplifted areas. When subsurface data are also lacking, geophysicists must start from scratch. However, practically without exception the executives of the producing company or group of promoters have more or less general information upon conditions in the area of prospective geophysical operations. Few regions are entirely uninhabited and information gathered in trade relations is available to supplement that furnished by advance geologists.

Operational Prerequisites

Since the locations in which exploration activities are to be conducted are within the limits of friendly sovereign nations or their territories, it naturally follows that certain requirements imposed by them will have to be met as conditions for operations. Concessions, leases and political considerations are outside the scope of this paper. However, it is pertinent to state that various governmental policies inevitably affect the planning and conduct of the exploration program. Basically, the type of operations will normally be one of these three: (1) The development proceeds under the terms of a concession granted a company upon the basis of agreements with that government as to conditions, terms, royalties, etc.; (2) The government concerned and/or national capitol or interests, participate to varying degrees in the actual operations; and (3) The government concerned has nationalized petroleum resources, and operations by other than nationals of that country are restricted to contracting companies or individuals working directly for that government or, more likely, its national operating company.

As stated, the political requirements are outside the scope of this paper but are very important factors in the planning and conduct of operations. While they are primarily the concern of the operating executives, close cooperation and exchange of information between them and those planning the actual geological and geophysical programs is absolutely essential. A thorough knowledge and understanding in advance of special or unusual operating conditions or requirements may save long and costly delays or even mean the difference between success and failure.

Field camp in South America

A favorite examination question of the late Dr. C. L. Dake, Professor of Geology at the Missouri School of Mines, was, "What should be the first step in starting work in a new area?" The expected answer was, "Find out everything possible about the area before ever starting actual work there." So strongly did he feel that this obvious answer should be given that the luckless students who failed to give it almost certainly were classified as lacking in horse sense and thus not equipped with the first prerequisite of a successful career in exploration. Not only were geological data included in this study, but any and all facts that might possibly be of value in the proposed work. Nowhere is this advice so pertinent as in a difficult foreign area where even a little information may save months of effort and needless duplication.

With the exception of Canada and the European countries, most of the areas of primary interest are either tropical or semi-tropical. The humidity and rainfall vary widely but in many areas they are likely to be very high part of the year. In the majority of cases, and particularly in the Latin-Americas and the Near, Middle and Far East where most of the activity is concentrated, normal living accommodations for the field personnel are not available. Hence, the problem of housing and feeding a considerable number of men under tropical field conditions becomes of major importance. In most instances the actual details of the camp operations are handled by the exploration department of the producing or contracting company for whom the work is being done. If not, these matters will require the full attention of at least one man under the supervision of the party chief or supervisor. These problems are discussed more thoroughly under the heading, "Equipment and Supply Organization."

Climatic changes in the plains areas of Latin-America tropics are primarily those due to, or closely associated with, variations in the amount of rainfall. In those countries in the vicinity of the Caribbean Sea the typical principal rainy season begins around May and ends about November. During this period torrential rains fall frequently. Climatic conditions vary widely in any country. In East Central Mexico, for example, the damp cold at nights in January and February calls for three or four blankets, while during April and May the writer has experienced daily temperatures of 120°F in the office tent, which was covered by a tent fly and shaded by trees. The humidity was almost 100 percent.

Climate in these tropics is largely influenced by the altitude, with its consequent effect upon the moisture carrying wind currents. In some unsually favorable areas, such as the present exceedingly important Eastern Venezuela llanos, in and adjacent to the State of Anzoategui, geophysical operations may usually be carried on with only slight hindrance from the seasonal rains. This is due to the well drained, sandy soil and the relatively moderate amount of rainfall. However, conditions vary from year to year, and in such years as 1938 when the rains were unusually heavy, operations may be retarded to a mere fraction of their former speed.

West of the Venezuelan short grass llanos are the tall grass llanos of the states of Apure and Barinas (formerly Zamora). A heavy soil and torrential rains produced by the proximity of the Andes Mountains to the west produce entirely different operating conditions. Combined with these climatic changes is a scarcity of roads or trails passable by trucks, requiring a considerably altered technique. In the dry season trucks and cars carrying geophysical equipment can make their way cross-country, although the mortality in springs will be heavy.

However, when the heavy rains begin in this area an automotive transported geophysical crew must hustle its equip-

Seismograph instrument setup in South America

ment from the back country to escape being mired down for months. In many areas passable by trucks in the dry season mules become the only mode of transport when the rains begin. Later, they too may bog down and bulls or oxen will transport the small amount of native freight moving. Towards the Colombian border immense areas stand one to several feet under water and only native canoes or bongos move over the inundated tall grass llanos country. In such extensive areas operations during the rainy season can be conducted only with marine or amphibious equipment. Even then, strong and rapid fluctuations in water levels introduce complications.

Illustrative of the amazing lack of preparation into which even an experienced organization sometimes slips is the experience a number of years ago of a major company which suddenly decided to embark upon a new program of geological exploration just east of the Venezuelan Andes. With no thought of the vagaries of tropical climate a number of geologists and engineers were shipped down to start work. They arrived in June and found one of the worst rainy seasons in years. Consequently, for the next few months several high-priced men spent the time bogged down in little native towns waiting for workable conditions. Preliminary investigation or even consultation with any of the many available individuals engaged in trade or cattle buying in this area could easily have given information that would have saved this waste. Reference to an encyclopedia or a good publication on physical geography and climate would have given valuable information. While such lapses are rare, the lack of information by the home offices on climate in areas to which geophysical crews are to sent is frequently amazing. Careful attention to this feature will pay large dividends.

Even in desert or semi-desert areas near the tropics such as Kuwait and Iran in southwestern Asia seasonal variations in the climate are a controlling factor in an exploratory campaign. For three to six months of the year, or roughly from April to September, a hot wind blows in some localities. Even the wandering Bedouin and his herds migrate from some of the desert areas until more bearable weather is resumed. For unacclimated foreigners to attempt to work during such times would often be foolhardy. Much can be learned from observation of the natives' customs and habits, for while his standards of living, health and sanitation may be utterly primitive, the processes of evolution have taught him how to adapt himself to that particular environment.

Insect Problem

Consideration of tropical climate leads naturally to that of insects. While at first thought it would seem that they could little affect a geophysical program, their effect on living conditions and the morale of the personnel is often most important. There are many individuals who seem constitutionally unable to stand the constant annoyance and irritation of the swarms of insects usually encountered in the tropics, and whose morale soon disintegrates under such conditions. Even the most phlegmatic nature acquires an extra edge under the constant attack. The eastern llanos of Venezuela, fairly well drained and usually swept by a breeze, are freer of insect pests than most tropics. The humid climate of portions of Mexico, western and west-central Venezuela, Colombia, Brazil, the South Pacific areas, etc., produce an insect condition impossible of comprehension to those who have not worked there.

As a final example of possible working conditions, the production departments of companies operating in Iran, Arabia, Iraq, and Bahrein must have air-conditioned, specially constructed tropical houses and various recreational facilities for their employes. However, the geophysical and geological crews who preceded them and who spent months and years finding the oil lived in tents, often had no refrigeration, and for recreation were chiefly confined to the usual evening poker game.

Sickness or injury of a member of a ghophysical crew in the States ordinarily means only the inconvenience of securing a replacement or perhaps doubling up of duties for a short time. Operations abroad are usually conducted with a too bare minimum of American personnel and replpacements are some thousands of miles away. While the airplane has cut down travel time greatly, the formalities required in many instances before work permits, passports and other immigration requirements are satisfied may necessitate weeks or even months before a new man can join the crew. Lacking trained replacements on the ground, even the temporary loss of a man becomes a much more serious matter.

As an elementary principle it is obvious that any individual selected for foreign service should be in good physical condition. A thorough physical examintion is essential. Typhoid shots and smallpox vaccinations are standard precautions. Other special inoculations may be required. Troubles with the teeth and the stomach (particularly stomach ulcers) are encountered more frequently under tropical conditions in a field camp. This is presumably due to the changed living conditions, bad water, lack of milk and fresh vegetables, and sometimes the monotonous and perhaps rather greasy diet often prepared by the cooks. Individuals with a "touchy" appendix are merely inviting serious trouble, for in a remote area where communication with hospital facilities may be a matter of several days or even weeks, an appendicitis attack may easily be fatal, whereas under ordinary domestic circumstances it would mean merely a routine operation. Those required to wear eye-glasses should carry at least one extra pair, and also a copy of the prescription, which usually can be filled in some large city of the country. Present-day air travel facilities, however, have very greatly reduced emergency health hazards.

The twin scourges of many tropics are malaria fever and dysentery. The first is mostly encountered in the more humid tropics while the latter seems to be prevalent in all tropical areas, and particularly where cleanliness and sanitation are especially bad. Malaria is transmitted by the female Anopheles mosquito, and the only sure preventative is to avoid being bitten by an active carrier. As the mosquito is most active at night an invariable rule should be to sleep under nets, or if in a permanent residence, in a well-screened room which is nightly sprayed with an insecticide as a matter of habit. The usual cure for malaria is quinine, taken orally or in shots, and/or the newer drugs, plasmaquin(e) and atabrin(e). Some of the new insecticides developed during the war, such as DDT, should be of great value both for safety and comfort. The writer, having gone from over 165 pounds to less than 125 pounds weight in a few months during a malarial siege can testify to its effects.

Dysentery is of two types, amoebic and fungus. It may be contracted in a variety of ways, but usually either from contact, even though very remote, with a carrier of the disease, or else from eating contaminated food. In many areas

all fresh fruit and vegetables are potential sources of infection and require boiling or treatment with a disinfectant such as a dilute potassium permanganate solution. Treatment of the amoebic type usually requires injections of emetine, while the fungus type may be treated with a variety of medicines, usually bismuth compounds.

A variety of infections from insect bites and the like are frequent. Gusanos (worms) hatch from an egg laid in the human flesh by a large mosquito-like fiy must sometimes be extracted by a doctor when located in the more vital portions of the body. Infected tick and leech bites are common. The first rule of health in the tropics is sanitation and cleanliness. Obviously, at least one member in authority on a party, and preferably its chief, should have had previous experiences under similar conditions. Beyond the above mentioned few items there are literally dozens of precautions that should be taken that only experience can teach. Practical information the experienced leader may impart may range from the invariable habit of shaking out one's boots in the morning to dislodge scorpions, centipedes or snakes that may have taken refuge there during the night, to the judicious observation that most foreign contracts carry the provision that anyone contracting a venereal disease returns home at once at his own expense. Of course, Canada, England, Denmark and some of the continental countries have living conditions similar or equal to our own, and there only ordinary care in preserving health is required.

A very excellent and comprehensive article entitled "Protecting the Health of Oil Industry Employes" appeared in the September, 1944, issue of "World Petroleum." It is by Dr. W. J. Denno and Dr. K. R. Fourcher, general medical director and assistant medical director, respectively, of Standard Oil Company (New Jersey). While it is primarily concerned with the bulk of the foreign personnel who are housed in permanent or semi-permanent camps, it carries suffcient information on transient exploration crews as well as general background data to be a very valuable reference guide to anyone concerned with the health of oil company personnel (and particularly foreign), away from normal urban facilities.

It is obvious that the ability to speak the language of a country is a great asset, particularly for those in the more responsible positions on a party operating there. In countries where the language is particularly unfamiliar or difficult, such as the eastern areas, it is probable that most individuals will acquire only a limited or at best, moderate, command of the language in a one or two-year stay. However, a particular effort to learn as much as possible even in such cases should be made, as communications and operations through an interpreter are never fully satisfactory and friendlier relations with the inhabitants are promoted.

A great deal of the foreign geophysical exploration for oil is done in Spanish-speaking countries and in such cases any person of ordinary intelligence should soon pick up a moderate knowledge of the language. It should be practically a requirement that in operations in the Latin-Americas those in responsible positions should be able to handle the language fairly well. Language barriers between the director of the party and his native labor may be a large negative factor in satisfactory operations. It may be observed in passing that the lisping Castillian all too frequently taught in our American schools is not the Spanish spoken in the Spanish-Americas. Typical of the average American's knowledge of languages, and even the technical men who should know better, was that of a certain executive who thought his correspondence to Brazil should be written in Spanish.

River operations, South America

Quality of Personnel

The speed and success of practically any foreign geophysical program, regardless of the type, is largely determined by the character and quality of the personnel. Indifferent, trouble-making, or mediocre men on domestic projects can be replaced when desired, but these individuals on a foreign project have a powerful advantage in the knowledge that their replpacement would be a very slow and costly process and that their deserved summary discharge might mean an indefinite suspension of operations. For this reason the personnel of any foreign party should be selected with the utmost care. If a choice should have to be made between character and ability the choice should lie with the perhaps slightly less capable individual who has demonstrated his dependability rather than a possibly more brilliant specimen who quits when conditions become tough.

Many formalities must usually be observed to secure admittance of the American personnel. Besides the usual passport, birth certificate, and medical requirements many countries now have a wide variety of restrictions on foreign technicians. Often it is necessary to show that the presence of any particular man is vital to the operation of the party.

If at all feasible the party chief of any geophysical crew, whether magnetic, gravimetric, or seismic, should have had previous foreign experience. While it is advantageous if the former experience has been in the same country, the next best substitute is experience under similar conditions. Only one who has preciously met at least some of the different problems encountered under these circumstances can comprehend them. Difficulties with an unfamiliar language, arguing, cajoling, bluffing or somehow persuading a frequently indifferent or slow customs' office to permit the passage of equipment and supplies, handling inexperienced native labor, and looking after the health and well-being of party members are a few of the extra problems not generally encountered in routine domestic operations.

Geophysical programs, whether by contract or company crews, are usually conducted under the direction of the geological department of the producing company. It frequently happens that the geologists, though entirely competent, are unfamiliar with the dttails and requirements of geophysical operations. Much friction between geological and geophysical departments, particularly in the case of non-company crews, can easily be aroused by a lack of cooperation or diplomacy. A studied policy on the part of the party chief and his personnel of carefully annd fully explaining the reasons for the various activities and requirements of the geophysical operations is of the utmost importance. While it would appear that the necessity of such a course is obvious, examples to the contrary are all too frequent. Direction of the work by a geologist-geophysicist with experience in both fields offers much the best insurance of efficient and harmonious operations.

As previously stated, geophysical crews working abroad customarily operate with a minimum of trained Ameri-

can personnel. The lesser positions are usually filled by natives or other men picked up on the ground. Hence it is imperative that in the case of key positions such as instrument operator and geophysicist some other members of the crew should be competent at least to carry on their duties in cases of an emergency until a replacement can be secured. In the case of seismograph crews a radio man may be available to replace the regular operator or shooter. The assistant geophysicist also should be capable of substituting for the geophysicist, and in practice should and does carry on the routine interpretation and computing, thus permitting the geophysicist to devote most of his time to program planning annd general administration, although at all times keeping a close check upon the interpretation.

In domestic operations on a seismograph crew the positions of party chief and geophysicist are sometimes filled by different men. However, for foreign work it is the firm opinion of the writer that the functions of both must be handled by one individual for efficient operations. More or less routine details of field administration are quite properly delegated to the operator and of interpretation to the assistant geophysicist but the general authority should vest in one man. It is understood that the party chief should have a working knowledge of the duties of each person on the party.

The operator obviously should be a man thoroughly familiar with his instruments, and should know not merely the routine operation of them but should be thoroughly conversant with their principles. He should be able to reconstruct from spare parts apparatus damaged or partially destroyed in the inevitable mishaps attendant upon work under difficult conditions. His ability along this line may well mean averting a long annd costly shutdown.

Mechanic Important

One of the most valuable men on any foreign crew and one now generally included in all personnel selections is the mechanic. He should be not only a good shop man, capable of handling the tools in a machine shop, but more important, should be a real "handy man" and able to perform a required job with the limited facilities usually available. On parties using automotive or marine equipment the mechanic is of course indispensable in keeping the equipment in operation.

However, even with animal or manual transportation, there is a definite need for a good handy man. Personal evidence of the value of such a mechanic was afforded the writer on a mule-transportation seismograph project. Using only a breast drill and simple tools carried in his field kit, a small lathe was constructed and repairs were made to a battery-charging motor which saved an expensive shutdown of two weeks.

Shooters on a seismograph party may at times be developed from natives, or found among the wandering American miners or construction men encountered everywhere, who have had experience handling dynamite. However, the policy of using trained men is decidedly preferable as so much of the safety of operations depends upon the powder man. Also, the frequent requirement that the shooter be able to operate radio equipment at the shot point generally rules out the untrained man.

Surveyors may be an actual part of the geophysical crew or may be detailed to it by the production company for which the work is being done. The former procedure is usually preferable, as surveying should come directly under the authority of the party chief for most satisfactory results. It frequently happens that surveyors may be found locally, either among the natives or itinerant American engineers. While these may be used to supplement the regular personnel the quality of work required usually demands the services of thoroughly reliable and competent surveyors. In the States with an established system of known boundaries and ties, a rather mediocre surveyor may perform the required duties satisfactorily enough. But in the unsurveyed and sometimes unexplpored areas covered in foreign operations, a base system of coordinates and triangulation network usually must be established upon which all subsequent locations are made. The astronomic and solar observations and the development of the grid system call for engineering information beyond that of the run-of-mine surveyor. The party chief should likewise possess at least a working knowledge of the engineering requirements. In passing, it may be observed that the engineer in some cases may have to be the hardest working man on the party.

While the foregoing remarks are somewhat more related to seismic personnel, they are applicable to gravity meter and magnetometer men. The size, complexities and difficulties of operations with them are generally much reduced from those of the seismograph crew. However, the chief surveyor on a gravity meter crew may have greater duties than his counterpart on a seismic party.

Trouble Makers

The old adage stating the harmful effect of "One bad apple in the middle of a barrel of good apples," may be strongly exemplified by the presence of one trouble-making individual on a party. The strain of operations under difficult conditions and uncomfortable living accommodations, constant annoyance by insect pests, and worst of all, enforced periods of idleness because of unfavorable weather conditions, will develop sharp edges on ordinarily congenial dispositions. The presence under those conditions of one disgruntled man may be the plague which changes an ordinarily cooperative crew into a bunch of discontented individuals and cliques.

The trouble-maker may be in that frame of mind because of salary discontent, living or working conditions not as expected, or for any one of various reasons, the most frequent of which is apt to be jealousy of the more favorable position of some of the other personnel. While it may appear that excessive emphasis is placed upon this subject, the occurrence is so common and so serious that its importance can hardly be exaggerated. Except in serious cases, word of the friction rarely reaches the executive department back in the States, as the party manager is to a large measure forced to pass over and ignore unpleasantness in order to continue production. In ordinary circumstances in the States such a trouble-maker would be summarily discharged, but he knows, as well as the party manager, that the time and difficulty required for his replacement make that course inadvisable except as a last resort.

The question of the choice of personnel for a foreign party to operate under difficult conditions is a major executive problem. The character, demonstrated ability, and past record of the prospect are the major considerations. If he has weakened or quit under tough conditions before, the chances are good for a repetition of the act. Frankness as to conditions to be encountered is essential, for nothing angers the entire personnel so quickly as to find living and working conditions not as represented. If told before starting the job that it will be difficult, that the camps will be remote, that weather and insects will be bad, and that recreational opportunities are practically non-existent, some prospects may refuse to go. Those who do accept, however, do so with an understanding of conditions and are much more likely to see the job through in a cooperative spirit.

Salaries for foreign operations are customarily substantially higher than for domestic work and include ordinary living expenses. However, the best attraction for the higher quality man is the promise of preferment in promotion either in remaining abroad or upon his return to the States after the completion of the foreign project. It is needless to say that such promises must be strictly kept because of future relations, if for no other reason.

The question of whether married or single men are to be chosen is a most vexatious one. While the single men have fewer home ties annd can travel at will, the majority of the older and more experienced men required in the key positions are usually married. Unless living accommodations for the wives and children are available in a nearby city or permanent camp, their presence on a foreign party living in a field camp is most generally not feasible. Plain homesickness is the malady that has probably incapacitated more emplpoyes in foreign locations than any other disease. It is possible for a man actually to be sick, literally and physically from that cause, and if he has not gone that far then he may well have deteriorated greatly in his efficiency. Prevention is far the best cure. In the milld cases that practically everyone suffers at some time or other, sympathetic treatment ordinarily succeeds best.

Repeating previous statements, while only thoroughly competent men are sought for foreign assignments, the largest single qualification is the demonstrated character of the prospect. This is particularly true on the more difficult projects. Too many candidates for the positions are youngsters with ideas of romance, adventure and travel. Actually, the romance is apt to be off-color; work and not adventure is the purpose of the job; and the travel portion is only incidental but eventually becomes tiresome, especially if done on one's own legs or the back of a hard riding mule.

A second and concluding installment of this discussion will be published in an early issue.

August Rate of Completions Very Little Above Last Year

THE rate of completing wells failed to continue during August at the year's peak reached in July, as unsettled postwar conditions began to be felt. In August wells were completed in the United States at the rate of 504 weekly, a substantial decrease from the 558 weekly reported in July. The August rate was only a little above that of 498 per week recorded for August of last year.

During the first eight months of 1945 there were 16,916 well completions in the country, an average of 483 per week, which was an increase of 10.2 percent over the 438 weekly for the corresponding period of 1944.

In 1944 approximately 24,000 wells were completed, and if the increase of 10 percent for the first eight months of 1945 should be extended to the end of the year, there would be recorded for all of 1945 a total of about 26,400 completions. That number would be fairly close to but short of the objective of 27,000 wells scheduled by the Petroleum Administration for War. However, both July and August showed considerably less than 10 percent increases over the corresponding months last year, with August only very slightly higher, making it appear that 1945 as a whole may record less than a 10 percent gain in completions.

As compared with the prospect of less than 27,000 completions for this year, the industry drilled an average of 30,500 wells annually in the five prewar years, 1937-1941, having completed nearly 34,000 in 1937 and over 32,000 in 1941.

Slowing down of drilling in August evidently was influenced materially by the prospects of lower crude demand which became apparent at the middle of the month with the capitulation of the Japanese. Allowables were substantially reduced as of September 1, especially in Texas, and in the first week of operation under the new allowables, United States production dropped to about 4,530,000 barrels daily, down more than 400,000 a day from the all-time peak of 4,944,000 daily in mid-July this year. In Texas, crude production was down sharply to 1,889,000 barrels daily in the week ended September 8, a drop of 334,000 from the output in the final week of August. It is only natural, of course, that until there is a recovery in the demand for crude, operators will be hesitant in drilling more wells than lease obligations require.

Rate of Completions in First 8 Months 10.2 Percent Above Last Year

(Figures compiled from weekly reports of editorial men, with following exceptions: Illinois from Illinois Geological Survey; Indiana from Indiana Division of Geology; Missouri from Missouri Geological Survey; Allegany, New York, Bradford and Kane-Clarendon, Pennsylvania, from the Producer's Monthly; Tennessee from Tennessee Division of Geology)

State or District	MONTHLY COMPLETIONS: August, 1945 — Details for August, 1945 — New Wells — *Oil	Gas	Dry	Others[6]	Old Wells Deepened	Total Completions — Aug., 1945[1]	July, 1945[3]	Aug. 1944[2]	Total Footage August, 1945	CUMULATIVE COMPLETIONS: First Eight Months — Details, January-August, 1945 — New Wells — *Oil	Gas	Dry	Others[6]	Old Wells Deepened	Total Completions — Jan.-Aug. 1945[4]	Jan.-Aug., 1944[5]	Percent Change, Weekly Average	Total Footage 8 Months 1945	RIGS IN OPERATION — Details for August 31, 1945 — Drilling	Rigs Up	Shut Down	Total: Drilling and R. U. — Aug. 31, 1945	July 31, 1945	Aug. 31, 1944
Alabama	1		1			2	5	4	7,018	9	1	13			23	21	+ 12.7	77,947	7	1	2	8	6	8
Arizona																6								
Arkansas	14	1	6			21	21	23	86,204	76	3	47		1	127	158	— 17.3	512,332	34	4	2	38	33	38
California	177	5	32		2	216	186	206	884,255	1,219	29	210		7	1,465	1,360	+ 10.8	5,967,114	251	64	39	315	327	401
Colorado		1				1	6	4	5,880	15	2	2			19	18	+ 8.6	110,183	30	12	3	42	45	13
Florida			1			1	1		3,460	1		10			11	1	+1,021.4	73,960	4			4	4	4
Georgia							2	3				6			6	5	+ 23.0	19,502						1
Illinois	104		61		8	173	214	204	548,593	663		442	11	96	1,212	1,254	— 0.6	2,934,062	169	35	23	204	211	214
Indiana	13	5	19			37	35	33	60,578	76	17	132	1	4	230	201	+ 17.7	367,171	29	21	13	50	51	45
Iowa												1			1	2	— 48.6	1,250						1
Kansas	70	15	76	2	5	168	160	156	545,606	499	83	464	7	49	1,102	1,186	— 4.4	3,492,326	259	21	10	280	279	289
Kentucky	45	14	39			98	44	84	141,579	167	55	147	1	1	371	499	— 23.5	667,986	44	28	6	72	71	95
Louisiana	57	7	35		1	100	86	73	364,914	398	44	224		3	669	501	+ 37.3	4,782,610	176	10	8	186	181	171
North	22	7	16		1	46	45	21	176,922	112	39	98		1	250	169	+ 52.2	1,172,287	65	3	7	68	60	60
South	35		19			54	41	52	187,992	286	5	126		2	419	332	+ 29.8	3,610,323	111	7	1	118	121	111
Michigan	39	6	46		1	92	42	63	235,350	213	29	265		1	508	436	+ 19.8	1,312,524	95	13	29	108	106	116
Mississippi	19		18			37	29	15	247,740	133	3	118			254	120	+ 117.7	1,651,593	57		6	57	65	44
Missouri	1		6			7	9	8	5,304	3	6	26		2	37	26	+ 46.4	42,895	3		3	3	5	9
Montana	17	1	8			26	29	55	66,821	107	11	31			149	237	— 35.3	383,630	38	8	5	46	53	57
Nebraska							1	5				3			3	12	— 74.3	11,512	1		1	1	2	1
New Mexico	20	1	17		1	39	29	39	121,911	192	10	81		2	285	274	+ 7.0	986,871	120	7	12	127	105	89
New York	69	2	1	39		111	112	100	157,188	470	2	3	265		740	834	— 8.8	999,847	87	13	22	100	118	107
N. Carolina			1			1			4,044			1			1			4,044						
N. Dakota																								
Ohio	32	42	38			112	89	134	278,658	162	230	245			637	630	+ 4.0	1,597,281	161	23	40	184	200	200
Oklahoma	120	14	92	1	5	232	192	201	825,141	944	65	519	28	33	1,589	1,218	+ 34.2	6,507,045	447	39	15	486	473	489
Pennsylvania	117	24	4	103	3	251	267	308	435,054	953	146	31	820	15	1,965	1,985	+ 1.8	3,369,340	239	37	68	276	289	354
S. Dakota																							3	
Tennessee			1			1			831			3			3	9	— 65.7	6,721	2			2	1	
Texas	385	70	229	5	12	701	588	665	3,030,177	2,727	460	1,592	25	69	4,873	4,080	+ 22.8	21,528,702	1,101	42	97	1,143	1,180	1,123
E.Tex.Border	2	10				12	16	8	78,947	7	42	13			62	21	+ 203.8	394,721	47	2	2	49	41	
E. Tex. Field																3								
Rest of E. Tex.	10	2	4			16	19	16	102,625	72	9	61		2	144	190	— 22.1	914,364	49	1	5	50	44	63
North Texas	106		80	4	2	192	149	148	433,581	606	10	515	22	15	1,168	943	+ 27.4	2,826,865	162	8	7	170	159	137
W. Central	28	2	23		2	55	35	49	151,272	129	34	152		5	320	274	+ 20.1	874,417	66	5	37	71	81	62
West Texas	110	2	28		2	142	125	172	698,963	896	11	268		26	1,201	1,070	+ 15.4	5,689,973	375	13	25	388	404	450
Panhandle	19	40	5		5	69	51	36	200,706	132	234	30		12	408	180	+ 133.1	1,258,249	105	3	8	108	135	108
Upper Coast	28	4	35	1		68	45	62	524,125	255	30	176	1	5	467	378	+ 27.1	3,429,817	100	3	2	103	102	113
Lower Coast	66	8	22		1	97	97	110	635,252	450	68	184	1	3	706	646	- 12.4	4,500,311	134	7	6	141	142	132
Southwest	15	2	25			42	42	49	170,426	160	22	150		1	333	303	+ 13.0	1,332,660	49		2	49	55	40
S. Central	1		7			8	9	15	34,280	20		43	1		64	72	— 8.6	307,325	14		3	14	17	18
Utah								1								1							5	
West Virginia	14	48	8		1	71	72	82	208,859	51	375	68		29	528	604	— 10.1	1,366,533	64	10	16	74	108	82
Wyoming	16		5			21	23	25	76,871	83	2	23			108	115	— 3.4	472,629	54	5	4	59	67	60
Total U. S.	1,330	256	744	150	39	2,519	2,242	2,491	8,342,036	9,166	1,573	4,707	1,158	312	16,916	15,793	+ 10.2	59,247,610	3,472	393	424	3,865	3,958	4,011

* Includes distillate wells. [1] Wells completed in 5 weeks, or 35 days, ended September 1, 1945. [2] Wells completed in 5 weeks, or 35 days, ended September 2, 1944. [3] Wells completed in 4 weeks, or 28 days, ended July 28, 1945. [4] Wells completed in 35 weeks, or 245 days, ended September 1, 1945. [5] Wells completed in 36 weeks, or 252 days, ended September 2, 1944. [6] Water input, gas injection, and salt water disposal.

Passenger Car Body Mounted in Place of Truck Cab Protects Entire Crew

TRANSPORTING WORK GANGS

Returning excellent dividends for the production department of one company is the combination field truck and passenger car shown. A light field truck was modified by cutting away a portion of the bed immediately behind the cab and inserting in its place the rear half of a 4-door passenger car body salvaged from the wrecking yard. This passenger car body was complete with doors, window glasses and upholstery, and when secured to the back of the truck cab it provided comfortable transportation for several field workmen. With this passenger space and the two men who could ride in the cab with the driver, all the men working in the crew could be taken to work, thus obviating the necessity of driving two cars to the field each day. For well-pulling work the remaining space on the rear of the truck bed is ample for carrying the tools required on that job. Chests for carrying small hand tools were mounted on the running board section just ahead of the rear wheels, and since these items formerly took up much of the space immediately behind the cab, very little lack of space is noticeable. For carrying the occasional joints of sucker rod, tubing or pump barrel, it is still possible to lash them to the side of the bed and have them extend the full length of the truck.

During inclement weather this passenger car section is of great value not only in going to and from work, but also in providing a place where men may keep changes of clothes, lunches, etc. and be assured of comfort while waiting between work periods in the field.

PENBERTHY
"REFLEX"
WATER GAGE SET

For oil field, locomotive type and marine boilers. Water shows black — steam shows white; the water level is unmistakable. U-Bolt construction is strongest and simplest to service. Glass replaced by simply removing nuts on face of gage . . . unnecessary to work between gage and boiler. Conforms with A.S.M.E., Federal and State requirements when used for pressures specified by their respective codes.

This is one of the complete line of Penberthy gages that meet every liquid level gage requirement.

See Pages 2450 to 2455. Composite Catalog

PENBERTHY INJECTOR CO.
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Turntable Protects and Unreels Fire Hose

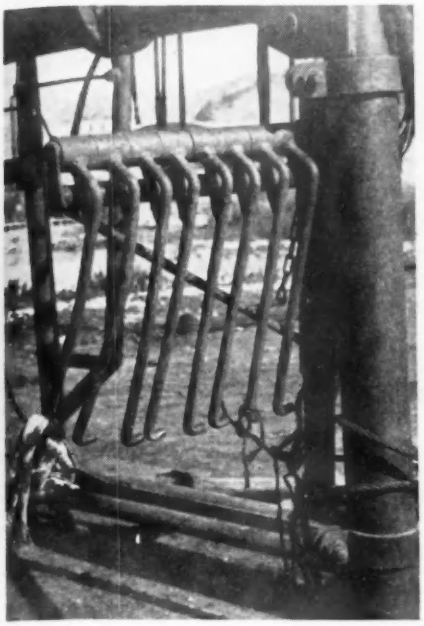
FIRE PROTECTION

A small amount of extra care taken storing fire hose on the lease will go far toward prolonging its useful life. A common method of racking such hose consists of looping it over small diameter rods spaced at short intervals, but in the variety of weather and temperatures experienced in the oil fields, creases soon become more or less permanent and the stiffened fabric soon develops cracks which make the hose useless. One company having extensive properties, with consequent large investment in this fire-fighting material, devised a turntable which not only helps preserve the hose, but also is unusually handy in times of emergency. A large circular disc of sheet iron was mounted atop a vertical axle set in the ground, four supporting legs or braces of sucker rod material extending from the base in spoke fashion up to the periphery of the table. Over the top of this round table is placed a sheet iron hood or cover having a depth slightly greater than the width of the coiled hose.

In practice, the fire hose is coiled up on the flat table and the convenient two-handled cover placed over it. In this position, no portion of the hose is under strain or subject to creasing, and it is protected from attack by the elements. Fittings for attaching to the fire hydrant are nearby and the hose is quickly and easily paid out toward the scene of the fire.

PRODUCTION HINTS

Hinged Mounting for Rod Holdbacks Speeds Job

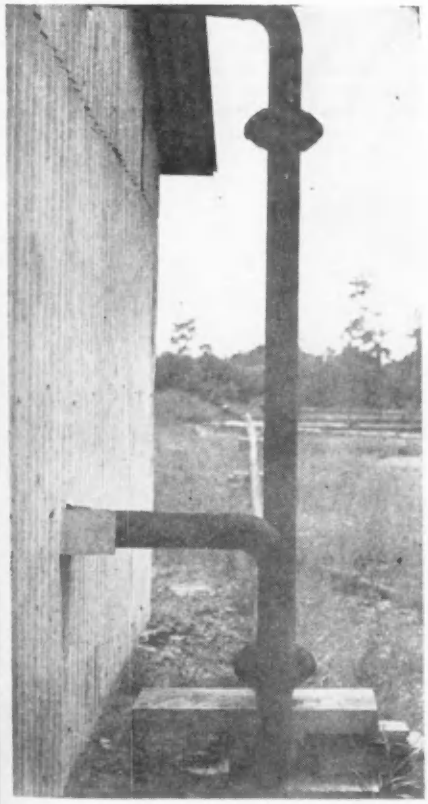


SUCKER ROD HANDLING

Matching the high degree of portability of their collapsible truck-mounted clean-out rig, the sucker rod hold-back device used by one company is saving considerable time while the rig is set up at the weld. It consists of eight short lengths of sucker rod bent in the manner shown, one end of each rod being welded to a short pipe nipple. All nipples thus prepared are then "strung" on a smaller diameter horizontally-mounted pipe. This rack is well braced, having an angle brace extending downward to below the center of the vertical pipe support.

As each stand of rods is pulled it is pulled back and lodged behind the hook end of one of the swing arms. Weight or "pull" of the stand holds the individual arms outstretched so that a number of stands may be hooked behind them. Advantage of the free-swinging feature of these invidivual arms lies in their being entirely out of the way until they are needed, and when rods are being run back into the well, each emptied arm will drop down to its former position.

Unitized Line Connections Protect Against Stresses



HEATER CONNECTIONS

Installation of a heater for breaking down emulsion in crude as run from the separator to the field flow line requires the building of some type of house around the unit if automatic temperature regulation be carried out to effect most advantageous treatment of the crude.

Where the lines to the heater enter the house, it is desirable that some type of flexible connection to the unit be used, so as to absorb some of the deflection caused by line expansion, and also to permit disconnection of the line for cleaning without disturbing the fitting.

One producing company uses couplings of the split type, locating them at the ends of standard nipples below the elbows in inlet and flow lines. With such a hook-up it is possible to block the pipe up to the desired height and then to place the coupling without requiring the services of more than the usual crew. The lower line is placed first, and the blocking for the upper then placed over the lower pipe so that it is not made to bear any of the weight of the other line. When thus set up, each line is free to shift without stressing the other, and either may be disconnected and cleaned independently of the other.

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A- 80-TC	7,500
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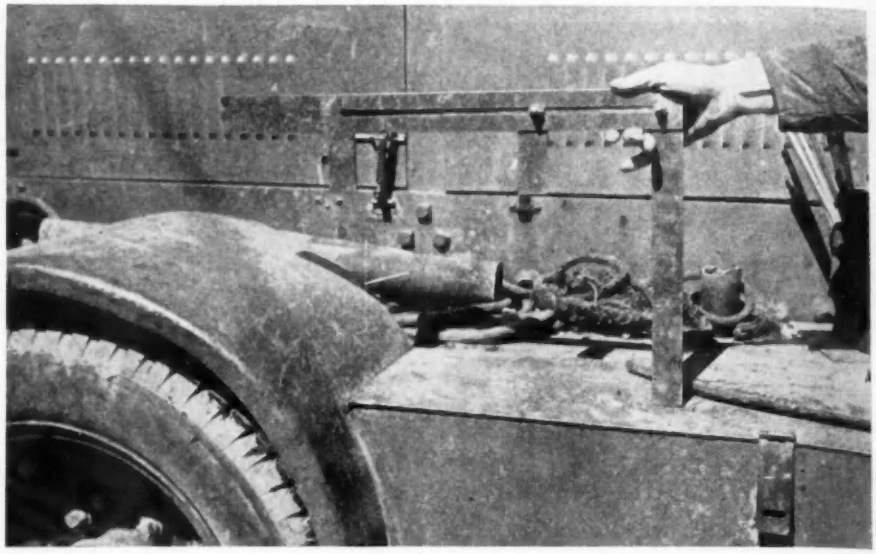
Unique Modified Square Speeds and Makes More Accurate Pipe Tie-Ins

PIPE WELDING

Pipeline welding ordinarily is a slower and more tedious job, compared to shop welding where benches and jogs are available, but part of this difficulty in the field was overcome by one welder who devised an aligning jig which greatly speeds up and simplifies the work. The principal value lies in welding flanges and similar fitings to the end of pipe sections where the problem of correctly aligning the welds is of prime importance. Two carpenters' steel squares were modified, portions of one being cut up to be assembled on the whole one. As shown, two 3-inch stubs of the square material were secured to the inner edge of the longer arm of the complete square, provision being made for them to be moved laterally so as to permit adjusting the space between these spacers.

In use, the longer member of the square arm is laid up alongside the pipeline with the two spacer stubs touching the surface of the pipe. The flange then is held up to the end of the pipe in position for welding, with the short arm of the square providing the means of insuring that the flange face is exactly perpendicular to the axis of the pipe.



The joints are tack-welded at several points, the alignment then checked again and if necessary is adjusted slightly by hammering, then welded all around permanently. Use of this square device has eliminated much of the measuring formerly necessary, and has improved the quality of welding.

Releasable Side Stop Speeds Pipe Joint Handling

PIPE STORAGE

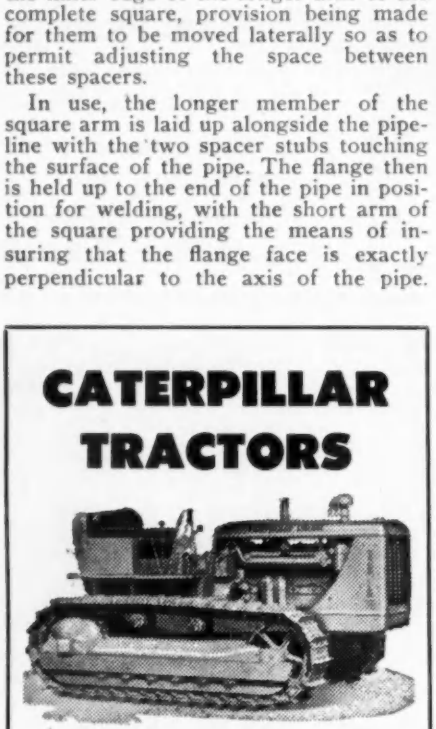
An ingenious improvement over the usual welded pipe rack on which spare joints of line pipe are kept has been developed by one gas transmission system. The usual stand, welded up from pipe and braced to support the weight of the pipe, is set into the ground in the customary manner, with the two ends of each rack being different. One side has the vertical member carried up to a point nearly equal to the pipe radius above the horizontal member. This prevents the pipe from being rolled off the rack on this side.

On the other side the upper end of the vertical member is left open, and within it is fitted the next smaller size of pipe, equipped with a head or ell at right angles to the vertical section. In the lower section a notch is cut on the outside sector so that the Ell-head member will slide within the aperture until the horizontal portion of the ell is level with the supporting member of the rack. It is then easy to slip a joint of pipe, bar or other extension into the open head of the ell and bridge the gap to the truck, for loading or unloading a joint of pipe.

When the rack is filled, the ell-shaped section is raised until it also extends almost to the horizontal diameter of the pipe, and it is there pinned with a half-inch bolt through matching holes in socket and sliding portions, forming a rack which securely holds the pipe until needed.

The movable section eliminates all lifting of pipe, either for storing or removing, and the pipe is safeguarded against being rolled off the rack either accidentally or maliciously. The locking bolt may be braded or riveted over on the threads to require wrenches to remove the nut if there is danger of tampering.

CATERPILLAR TRACTORS



For Pipe Line Work

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Caterpillar Tractors. Road Machinery. Diesel and Natural Gas Engines, and Electric Sets, for every oil field and pipe line operation.

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OKLAHOMA CITY TULSA

PIPE LINE HINTS

Portable Crossing for Protecting Levee Lines

In low country, where pipe lines must traverse levees—through which no excavation is permitted—it is frequently found necessary to maintain some degree of local traffic over the pipe line before it can be covered in a carefully constructed mound which is solid enough to withstand traffic.

LINE PROTECTION

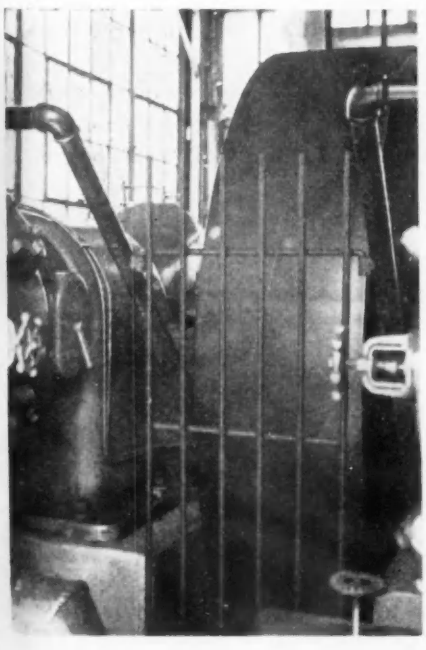
One pipe-line contractor devised a set of road crossing units which permit him to bring in materials without damaging the coated and wrapped line, and without hindering slight lateral shift of the line in either direction when lowered into the trenches reaching to the flanks of the levee. Each half of the unit consisted of a heavy plank section, bolted to four 4-inch pipe transverse members, these latter being fitted with curved ends which fit over the line pipe.

Before the first of these covers was placed, the top of the pipe was protected with an extra strip of felt, laid lengthwise, and then the curved ends of the unit were placed on the pipe. The corresponding curved sections of the other road section were laid atop those of the first section, so that only 4 curved plates actually contact the pipe wall.

Sufficient flexibility is afforded by the contacting curved sections so that a heavy trailer, pipe laden, could be pulled across the line without so much as damaging the extra strip of paper laid atop the pipe.

If there is noticed any tendency for the crossing to creep to either side under impact of traffic, it is a simple matter to weld ears on the sides of the lower curved members so that they will contact the arcs of the upper section of the crossing. In this way full registry of bearing across the entire contact with the pipe is assured, and cutting of the felt pad avoided. The two sections may be anchored with short guys to conveniently located stakes, if necessary.

Flywheel Guard Protects Without Obscuring Unit



Where the flywheel of a compressor unit is left open, some sort of guard is required across the opening to the wheel pit, no matter how thoroughly the way may seem to be blocked by piping and compressor parts themselves. One engineer protected the wheel with a light guard, formed from welding up bits of scrap sucker rod, which leaves the wheel free for inspection or cleaning, and which does not delay use of the jacking-bar when spotting the engine.

STATION SAFETY

The upper cross member of the guard is formed with hooked ends which fit into sockets welded to the angular risers on the compressor cooling system piping. These sockets hold the guard in place, yet permit its removal simply by lifting free, so as to open the way to the wheel much more rapidly then when a bolted cover is used.

The guard is so placed that the oiler can stand outside the unit and reach the rim of the flywheel with a wiping rag, and the engine thus kept clean without necessity for the operators to get within the railed-off space.

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This pioneer line of trenchers has kept a jump ahead of pipeliner's needs. Buckeye Mainliners get down the big pipes faster; keep ahead of layers and welders. They've got the stamina for toughest going in any country. Models 32 and 48 for main lines; Models 11 and 12 for small gas, gasoline and gathering lines.

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Findlay, Ohio
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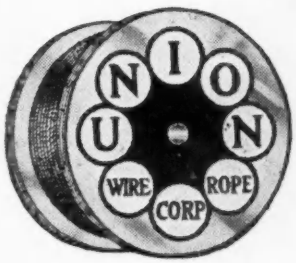
PIPE LINE SUPPLIES AND EQUIPMENT



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GILMORE WIRE ROPE DIVISION

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The Outlook

A serious surplus of rubber, due to heavy synthetic production and recovery of the Far East plantations, is foreseen by high Washington officals, but its impact will not come for several years. Immediate steps will be taken, however, to develop a national rubber policy in which provision will be made for a permanent synthetic-rubber industry as a safeguard against recurrence of the disaster of 1942. (See page 77).

* * * *

Postwar military petroleum requirements, while only a fraction of the volume required for active operations, will continue to be substantial for many months, particularly to meet the needs to bring our armed forces home, while rehabilitation of war-ravaged regions and resumption of normal commerce also will help to give the industry volume while the domestic market is building up.

* * * *

Oil companies are preparing to start a race to establish new retail outlets to catch up with the population shifts of the last four years, and to build the transportation and terminal facilities which will be needed. At the same time, the major companies will embark on postwar projects involving expanded facilities for research and production. All told, the industry will be a considerable factor in the construction picture as soon as materials become available in adequate volume.

* * * *

The Federal Government has built ten and three-quarters million deadweight tons of tankers since 1939, slightly over ten million tons of it in the form of merchant carriers and the remainder military. Construction included 616 ocean-going merchant tankers—losses to VE-Day were 104, indicating a tanker fleet now some 500 vessels greater than before the war. (See page 80).

* * * *

Big fear of the military is that Congress will not set up machinery for a big Army and Navy, leaving them with depleted forces with which to handle postwar occupation and security operations.

* * * *

Mid-Continent oil operators are studying plans to equip trucks with two-way radios as soon as available after the war. FCC has already assigned a number of radio channels tentatively for communication with trucks and other mobile units.

* * * *

Despite war's end, oil supply houses predict continued shortages on some badly needed equipment for the next year. Power equipment will remain tight; internal combustion engines and parts are tight but quick improvement expected; casing and tubing easing slightly; construction machinery tight.

* * * *

Mid-Continent oil men look for a revival of anti-trust investigations and prosecutions as soon as wartime agreements have been terminated, with prospects that the so-called "Mother Hubbard" suit against many oil companies and trade associations including API, will be revived. However, oil men believe that the government's attitude will be greatly modified in view of the oil industry's fine wartime record.

* * * *

There are some indications that automotive manufacturers may be figuring on 10 million cars for 1946 which would more than bring the auto population to the 1942 level. Demand for new cars after the first wave of buying is estimated at about 5 million cars.

* * * *

Wildcatting does not appear likely to be as extensive for 1945 as the PAW indicated to be desirable. Exploratory wells were completed at lower rate in August than in July, and for the first 8 months were less than 3 percent above last years' trend. In 1944 there were about 4300 exploratory completions, and the goal for this year was 5,000.

THE NEWS IN PICTURES

1. A 55,000-barrel tank at the Eastern States Petroleum Company, Houston, flames into a gigantic smudge pot after being struck by lightning September 10. Twenty-six firemen and refinery workers were sent to hospitals by the $150,000 blaze, which forced an estimated 200 persons to evacuate their homes nearby. The damage included loss of the tank and its contents, a 500-gallon fire engine pumper owned by the refinery; the company's personnel office; two wooden pumping shacks; a gasoline loading rack, and two 15,000-gallon gasoline tanks.

2. An M-4 decontamination truck pumps DDT into the 550-gallon tank in the bomb bay of a B-25 bomber at Madison, Wisconsin, prior to a flight over Rockford, Illinois, where the solution was sprayed in an experiment to kill flies carrying polio virus.

—Acme Photo

3. This refinery near Yokohama is a mass of ruins after an incendiary bomb attack by U. S. bombers. Note the ends of oil drums, which have been popped open in the intense heat.

—Acme Photo

4. One of the prime reasons for the defeat of the Japs was the successful sea and air blockade which deprived the enemy of petroleum. Here, a Jap puts straw and coal into the rear of a bus.

—Acme Photo

5. This is the architects' rendering of the proposed 33-story Esso Building; which will be erected between West Fifty-First and West Fifty-Second Streets, New York. The 424-foot structure will be flanked by the Chemical Bank and Trust Company.

The Week's News

POSTWAR problems are definitely in the limelight in Washington, where Congress last week passed legislation to supplant the present three-man board with a single administrator of surplus property disposal and the House approved a bill for greater control over government corporations.

National Rubber Policy—The future of the synthetic rubber industry also came in for consideration, with Reconversion Director Snyder setting up a committee to study all phases of the rubber situation and outlook, preliminary to adoption of a national rubber policy. Page 77.

Tankers and Big Inch—Disposition of the great tanker fleet built during the war will shortly come up for discussion. More than 650 tankers were built during the war and some 750 now are under government control. Existence of this large fleet will lead industry representatives to recommend to Congress that the Big Inch pipe lines be taken out of service entirely. Page 80.

Postwar in Elk Hills—Standard Oil Company of California was disclosed to have a postwar problem of its own in the shape of future operations in the Elk Hills naval reserve. Officials of the company talked with the Navy Department last week. Page 79.

Manly Leaves FPC—Chairman Basil Manly is leaving the Federal Power Commission on the eve of the opening of its natural gas investigation (to become president of a gas company), and Commissioner Nelson Lee Smith has been named to supervise the study. Story below.

Anglo-American Relations—Members of the American delegation left for London to undertake the negotiation of the revised Anglo-American petroleum agreement, hopeful of reaching the point of signature within a month. In Washington, top representatives of the English labor government offered to trade elimination of tariff and trade barriers on American goods for a multi-billion dollar loan. Page 77.

PAW Lifts Restrictions—PAW went several steps further in killing itself off, announcing the recall of directives to assist in the procurement of parts for drilling rigs and disclosing that the wraps will be taken off California production October 1. Warned Deputy Davies as he left for London: California operators experiencing the results of enforced conservation during the war period should support the move for a state conservation law. Page 76.

Oil Leases Offered—The first big opening of land for oil leases in recent years threw some 1,350,000 acres near the Rangeley oil field in Colorado-Utah into the pot. Page 77.

Gasoline Group Commended—Three years of service by members of the aviation gasoline advisory committee was marked last week by a special commendation conferred upon the group by Deputy Administrator Davies. Composed entirely of volunteer workers, the committee was credited with from 15 to 20 percent of the production of the 100-octane aviation gasoline program, which at the close of the war had reached more than 525,000 barrels a day in this country and some 75,000 barrels daily in other United Nations.

Petroleum Cooperative—An international petroleum cooperative again has been suggested by Howard A. Cowden, president of Consumers Cooperative Association, Kansas City. Page 80.

PIWC Meeting Dates—PIWC's next meeting has been postponed from September 26 to October 24 when the group of officials and industry leaders will be back from the London conference and a full report can be heard on the oil pact. Page 78.

Storage of Foreign Oil—Richard V. Hughes, director of production research for the Pennsylvania Grade Crude Oil Association declares "the storage of foreign oil in depleted United States oil fields is impractical." (Note—Hughes' discussion will appear in full in the September 24 issue of THE OIL WEEKLY.)

Oil's Transition—Adjustment of the petroleum industry from war to peacetime will create little dislocation, Deputy Administrator Davies declares after a careful survey. Page 78.

On Promotion Committee—A number of leading industrialists, including H. F. Sheets, chairman of the board of Socony-Vacuum Oil Company, who will represent the U. S. Chamber of Commerce, have been appointed by the secretaries of State and Commerce to an advisory committee to review current methods of trade promotion and protection by the foreign service, with a view to adapting them to new and changing conditions.

Further Cuts in Texas—Further cuts in Texas crude oil production were indicated Friday when the Railroad Commission held its statewide proration hearing. Page 78.

New Chairman Takes Over as FPC Opens Investigation of Natural Gas

The initial hearing of the Federal Power Commission's investigation of natural gas will get under way this week at Kansas City. A long list of witnesses are ready to present testimony to FPC and will be on hand at the opening session September 18 in the Kansas City city hall.

Supervision of the FPC investigation has been taken over by Commissioner Nelson Lee Smith as a result of the resignation of Chairman Basil Manly. Smith will preside at the first hearing in Kansas City.

Among the major topics expected to be developed at the first meeting will be that of gas vs. coal in the industrial communities in the coal-producing states. Representatives of the coal industry have asked for time during the three-week session at Kansas City.

Following the hearing at Kansas City, the FPC will conduct additional hearings beginning October 9 at Oklahoma City, October 30 at New Orleans, and November 27 at Dallas.

Witnesses scheduled to appear before FPC at Kansas City include Senator Reed of Kansas, Mayor Gage of Kansas City, Governor Schoeppel of Kansas, on behalf of the Interstate Oil Compact Commission, E. DeGolyer, representatives of the Kansas Corporation Commission and Missouri Corporation Commission and others.

Among other state representatives who will be present at the initial hearing are the three members of the Texas Railroad Commission, Chairman Olin Culberson, Ernest O. Thompson, and Beauford Jester.

The commission has announced that it has assigned Examiner Marvin Farrington to the gas investigation.

Manly, who has been a commission member since 1933, has resigned to become president of the Atlanta Gas Light Company, Atlanta, Georgia, and will be succeeded by Harrinton Wimberly, of Altus, Oklahoma, who was named to the post by President Truman September 12.

The president also announced the appointment of Richard Sachse of Sacramento, a member of the California Railroad Commission, to succeed Federal Power Commission John W. Scott.

Manly was employed in the govern-

ment service for nearly 40 years. Prior to his appointment to the FPC he had been director of the commission on industrial relations in 1914-15 and joint chairman with former President William Howard Taft of the National War Labor Board during the latter part of World War I.

Simplified Priority Plan To Govern Import Shipping

All wartime import shipping quotas have been eliminated because of the eased shipping situation, but a simplified system of priority preference ratings will be maintained to insure that commodities and materials important to reconversion or still needed by the armed forces will be given preferential treatment, the War Production Board and War Shipping Board announced September 11.

The priority ratings will be, in order of their importance, A, B, and C, and a B rating has been assigned petroleum and petroleum products.

In a joint statement, the two boards explained that until very recently shipping space for imports was tight from certain areas, such as East, South and West Africa and the east coast of South America, but there now is space for practically all cargoes.

Texas Well Permits Set Record High for the Week

Permits to drill 178 new wells in Texas were approved by the Texas Railroad Commission last week, the highest number approved in one week for at least two years. North Texas led the list with 49 locations.

There were 31 in Southwest Texas, 28 in West Texas, 19 in East Central Texas and 19 in West Central Texas. The Gulf Coast listed 17 permits, and there were 15 from the Panhandle.

API Meeting Dates Now Definitely Set

Definite scheduling of the twenty-fifth annual meeting of the American Petroleum Institute for November 12-15, 1945, at the Stevens Hotel, Chicago, has been announced by President W. R. Boyd, Jr. The lifting of travel restrictions to conventions on October 1 removes the final barrier to holding this victory jubilee meeting. Boyd said, the program now in preparation will include nationally prominent speakers on subjects of particular interest to the industry today, new products, new markets and enlarged opportunities for service. Interest already displayed in the meeting as a result of the announcement of its tentative scheduling indicates it will be a high point of the institute's history, Boyd said.

State Conservation Law Urged as PAW Lifts California Restrictions

Wartime controls over California crude production will be revoked October 1, it was announced by PAW September 12.

On the date, PAW Directive 19, which applied only to California and was issued to meet the special conditions existing in that state, will be rescinded.

The directive was issued because California was the only major producing state that had a substantial volume of productive capacity in excess of current requirements and did not have a state oil regulatory body. It provided for allocation of production by fields, pools and wells in such manner as to obtain the maximum sustainable rate of production consistent with efficient operating practices.

Pointing out that with the end of hostilities military requirements decreased to the point where continuation of controls over California production no longer is necessary as a war measure, Deputy Administrator Davies took the position that PAW's retirement from the field "does not mean that some measure of state regulation for purpose of conservation is not necessary."

"In fact," he added, "many of the California operators far a long time have felt that this is essential, and there is some indication, emanating from recent meetings, that the number of operators who favor state legislation is increasing.

New adherents to the cause of conservation through regulation, where operating under wartime orders, have found that the regulating of production to conform to good engineering practice is not only very desirable but a procedure which is not difficult to subscribe to. In other words, familiarity with the procedure has dispelled a good many doubts."

Directives for Expediting New Rigs Parts Cancelled

All outstanding PAW directives for expediting the delivery of parts for new drilling rigs were cancelled by the oil agency September 11 and no further directives will be issued. The outstanding directives called for new rig parts for the Caribbean area, requiring deliveries this month.

The rig directives were issued during the war to insure a continuing supply of crude by expediting drilling in fields and pools most suitable for developing new production quickly. Many of the orders were to provide equipment for the Caribbean, where a considerable increase in production was obtained for the latter part of 1945 and during 1946 to relieve the burden on domestic fields and pools which were operating in excess of maximum efficient rates.

PAW announced that operators' requirements for emergency maintenance and repair work will continue to be given priorities assistance under the P-98-b order until the end of the month, when the order, which assigns priorities to petroleum operators, will expire.

PAW also revoked a number of other orders, among them the following:

Recommendation 23: Production of alkylate for use in manufacture of 100-octane aviation gasoline.

Recommendation 31: Manufacture of butadiene.

Recommendation 40: Refining and distribution of automobile lubricants containing additives.

Recommendation 41: Catalytic cracking and hydro catalytic reforming.

Recommendation 48: War process.

Directive 52: Synthetic rubber.

Recommendation 55: Conservation of paratone.

PAO 16: Petroleum sulfonates.

Directive 77: High-octane aviation gasoline.

Directive 75: Processing and refining crude oil and natural gasoline.

Directive 80: Manufacturing asphalt.

PDO 21: Premium motor fuel.

PDO 22: Manufacture and delivery of fuel oil.

Directive 76: Petroleum supply on the West Coast, Alaska and Hawaii.

FPC Completes Probe of Rodessa Gas Negotiations

The Federal Power Commission last week terminated its investigation of activities of W. C. Feazel, J. Floyd Hodge, Thomas J. Hill and Richard W. Leche, governor of Louisiana at the time, in the purchase and resale of natural gas from the Rodessa field through which, without capital investment, the group and varying combinations received a total of $844,251, of which $249,249 went to Leche.

No service was rendered and no money invested in facilities in connection with delivery of the gas, and total expenses incurred was set by the commission at $25,596, principally for attorney's fees, office expenses and natural gas sales tax. The FPC opinion stated that this amount of $25,596 represented the only charges which Feazel and his associates were entitled to recoup, in addition to the cost of gas purchased.

Permit Granted by FPC for Tuscola-Mattoon Pipe Line

Central Illinois Public Service Company has been authorized by the FPC to build a 6-inch pipe line between Tuscola and Mattoon, Illinois, 20 miles, to permit it to obtain its gas supply directly from Panhandle-Eastern Pipe Line Company for Mattoon customers.

A petition has been filed with the FPC by the city of Detroit and Wayne County, Michigan, for an order requiring Panhandle-Eastern to improve its transportation facilities or lift certain restrictions on the purchase of gas by Michigan Consolidated Gas Company, or both.

May Perfect Within Month Anglo American Oil Pact

Members of the United States delegation who will negotiate the revised Anglo-American petroleum agreement with the British authorities, left last week for London, where conferences are scheduled to begin September 17.

The official delegation consists of Administrator Ickes, Deputy Administrator Davies and Charles B. Rayner, petroleum advisor to the State Department, who will be accompanied by a group of technical advisors from the industry, including William R. Boyd, Jr., chairman of the PIWC; A. Jacobsen, chairman of the council's national oil policy committee; George A. Hill, president of Houston Oil Company; W. Alton Jones, president of Cities Service Company; Joseph E. Pogue, vice president of Chase National Bank, and Ralph T. Zook, president of the Independent Petroleum Association.

More than a year has passed and a change in administration has taken place in both Washington and London since the original agreement was signed in August, 1944, but there has been no change in the position of the United States government with respect to the treaty and it is believed that new English labor government, in this instance, will follow the policies of its predecessor Churchill government.

As they left for London, members of the delegation expressed the belief that the agreement can be perfected within the period of a month.

Gasoline and Fuel Oil Prices Cut in District 1

On September 17 retail prices for gasoline and fuel oils in 17 eastern states and the District of Columbia returned to their prewar levels, the former dropping 1.2 cents per gallon, except in certain areas where the reduction will be 0.6 cents and the latter going down 1.5 cents per gallon, except in certain areas where the reduction will be 1.4 cents or one cent.

The amounts cut from gasoline and fuel oils prices represent the additions ordered during the war to help meet the extra cost of transporting products to the Eastern seaboard area by rail and pipe line during the period when tanker transportation was unavailable.

Texas Mid-Continent Cancels Its Convention

Continued hotel congestion has forced Texas Mid-Continent Oil and Gas Association to cancel plans for its annual membership meeting scheduled in Houston October 4-6, according to George C. Gibbons, executive vice president.

In lieu of this gathering, which usually attracts hundreds of oil men, a directors meeting will be held at a date to be announced later.

Inter-Agency Group Will Formulate National Policy Regarding Rubber

Facing the realities of an eventual over-supply of rubber, when recovering production of the natural product in the Far East comes into the market on top of our own synthetic output, Reconversion Director John W. Snyder last week created a committee of top-flight government officials to survey all rubber problems—natural, synthetic and reclaimed—and develop a national policy to stabilize prices and supply, encourage the development of the synthetic industry and set up adequate safeguards against the possibility of another shortage.

William L. Batt, War Production Board vice chairman for international supply, was named chairman and representative of Snyder's office. Represented will be the State, Justice, War and Navy Departments, Surplus Property Board, Reconstruction Finance Corporation and Foreign Economics Administration.

The threat of over-production is probably several years in the future and that in the interim the domestic synthetic rubber industry will have to continue at a high level of production. However, it was stressed, the nation should develop its permanent rubber policy well in advance of that time, so that it could be put into effect gradually as the situation changes.

In a letter to the heads of the seven agencies, Snyder pointed out that, "now that hostilities have ceased, a co-ordinated United States policy with regard to rubber is essential to provide for an adequate supply or rubber—both natural and snythetic—to satisfy the strategic requirements of the United States; that it provide, with a minimum of interference to international trade, for expanding the supplies of natural and synthetic rubber at reasonable and stable prices, and that it encourage research and development with respect to synthetic rubber."

Public Lands Thrown Open for Oil Leasing

More than 1,350,000 acres of public land on the Utah-Colorado border near the recently developed Rangeley oil field has been thrown open to leasing under the federal leasing act, it was announced September 15 by Secretary Ickes.

The land lies within the former Uncompahgre-Ute Indian reservation which was withdrawn from entry in 1933 in aid of legislation to create a grazing reserve for the benefit of the Ute Indians and resident white users. The necessary legislation has never been passed.

Meantime, it was pointed out, the value of the area as a potential new source for oil was accentuated by the development of the Rangeley field, which led to a popular demand in the region for the lifting of the restrictions of the original withdrawal order. The order was withdrawn in line with the department's established policy to relinquish federal land withdrawals whenever possible.

September Demand Placed 8 Percent Below the Peak

Domestic crude production of 4,600,000 barrels daily will be required to meet demand this month, it was estimated last week by the Bureau of Mines. The forecast output is about 8 percent below the peak demand of the past three months, it was said.

Actual demand for domestic crude set a new record of 5,003,000 barrels daily in June and is estimated to have continued over 5,000,000 barrels daily through July and August.

However, the bureau held, "material changes in total oil demand will result from the cessation of hostilities, the termination of gasoline and fuel oil rationing, and the discontinuance of compensation for special rail movements of crude and fuel oils. The probable immediate net result of these adjustments is indicated by the rate of crude oil production recommended by the PAW for September of 4,572,900 barrels daily—a decline of 328,000 barrels daily compared with August."

During the first half of the year daily crude production averaged 4,806,000 barrels compared with 4,470,000 barrels in the same period of 1944, the bureau reported. Imports of crude amounted to about 31,500,000 barrels, compared with 19,900,000 barrels, while total stocks declined about 28,000,000 barrels, 4,000,000 from crude and 24,000,000 from refined products stocks.

Total demand for all oils, including exports, rose from an average of 5,052,000 barrels daily for the first half of 1944 to 5,575,000 barrels daily this year, a gain of over ten percent. Exports of all oils amounted to some 112,000,000 barrels during the first half of the year against 97,000,000 barrels in 1944.

Oklahoma Hearing

Oklahoma Corporation Commission has fixed September 27 as the date for hearing to determine the amount of oil to be produced in Oklahoma during October and November and to determine the allocation of gas during the same period from the West Cement Medrano sand, Lower Charlson sand in Chickasha and the Guymon Hugon pool.

Home Front Demand to Help Offset Decline in Military Requirements

Adjustment of the petroleum industry from war emergency to peace-time operations will create little dislocation within the industry, Deputy Administrator Davies held September 15 in a review of supply and demand estimates for the remainder of 1945 and the first quarter of 1946.

Increases in "home front" demand, Davies said, will go far to offset the decline in military requirements and the industry, on the whole, has only relatively simple adjustments to make in refining operations to return to normal operating conditions.

Another meeting will be held next month of representatives of the United States and British governments who met semi-annually during the war to schedule oil supplies for the United Nations, but the meeting probably will consist of nothing more than "an informal exchange of petroleum information," since problems of supplying war time demands no longer exist, he said. Reviewing current conditions, Davies said the supply situation in the United States since V-J Day has been satisfactory.

Tanker movement to the East Coast now is running approximately 900,000 barrels daily.

Only preliminary over-all estimates of oil requirements beyond the end of this month have been made so far by the armed forces, he said. Japan's capitulation was followed by a reduction of 35 percent in military and shipping estimates of requirements during the last quarter of this year and the first quarter of 1946, representing a decrease of about 850,000 barrels daily in United Nations' military and shipping requirements.

On the other hand, Davies said, it is estimated that the increase in civilian and industrial demand, both here and abroad, will reach a maximum of 500,000 barrels daily during the winter period, or about 350,000 under the reduction in military and shipping demands.

During that period, however, crude production probably will drop about 65,000 barrels daily in district 5, 10,000 barrels in district 2, 225,000 barrels in district 3, 25,000 barrels in district 4, 15,000 barrels in the Near Middle East and 40,000 barrels in the Caribbean area, a total of 380,000 barrels, which is equivalent to approximately 350,000 barrels of finished products.

Part of the reduction in crude production will result from reversion to the maximum efficient rate of production, Davies explained.

Davies emphasized that his figures represent only preliminary estimates for the next six months. At the end of that period, he said, both demand and production probably will show further declines.

"In view of preliminary estimates of supply and demand, the American oil industry undoubtedly will suffer comparatively little from its adjustment to peace time operation," he declared.

PIWC Meeting Is Delayed a Month

What will probably be the final meeting of the Petroleum Industry War Council is tentatively scheduled for October 24, at which time it is hoped that the delegates now in London in connection with the negotiation of the new Anglo-American petroleum agreement, together with the industry leaders who are accompanying them, will be back with a signed pact.

The council meeting originally was scheduled for September 26, but is being postponed because of the absence of these men and the desire to receive a full account of the negotiations and their results.

The general belief is that the next meeting of the council will be its last as a wartime organization, there now being practically no problems requiring joint government-industry action.

Further Cuts in Texas Production Seen Likely After Statewide Hearing

Further cuts in Texas production were indicated at the statewide proration hearing held by the Texas Railroad Commission in Austin Friday. PAW reported a reduction of 110,000 barrels daily in the demand for Texas crude in October. Total demand for all oils was estimated at 2,034,000 barrels, and the crude demand at 1,868,000 barrels. Nominations filed by purchasers totalled 2,061,409 barrels, down 344,284 barrels from September. The biggest cut was in Gulf Coast District 3 which dropped to 463,469 barrels, a loss of 108,416 barrels per day. West Texas District 8 lost 91,037 barrels, was down to 424,062 barrels. Every other district reported a decline, as follows: One, 4512; two, 31,464; four, 28,504; five, 8273; six, 13,390; East Texas field, 38,739; Seven-B, 4271; Seven-C, 2620; nine, 5773; ten, 7285.

Most of the trouble centered in the Gulf Coast and West Texas. Humble announced that it was cutting its nominations 10 percent in all fields where it purchased sweet crude, and 20 percent in all fields where it purchases sour crude, with the exception of the Panhandle where there was no change. This meant a 36 percent reduction in Humble sour crude purchases since the end of the war, while its sweet crude purchases were down 28 percent.

Magnolia and Sinclair wanted to increase East Texas production by two days, letting it produce 22 days in October. H. P. Nichols protested and contended that the price should be increased if there was a greater demand. It seemed unlikely that the commission would change from 20 days, since both major purchasers are connected to other fields and could buy sweet crude from them.

Both Barnsdall and Plymouth wanted increases in Southwest Texas. Humble offered to sell them any crude which they might lack. The Logco Pipe Line Company reported its nominations down from 2300 to 155 barrels daily as war contracts were cancelled.

Magnolia said its demand for oil deliveries to its Seelig station near Seeligson field, had dropped 5000 barrels from 13,000. It is now storing the oil, but unless a market is found soon, it will ask for a reduction.

Sun still wanted as much oil from Districts 3, 4 and 6 as it had been purchasing before the end of the war, and asked for increases in several fields in this area.

The commission reported that aEst Texas field pressures rose 1.06 pounds during August while the field was producing 384,810 barrels daily. A greater pressure rise in September seems certain with reduced production.

West Texas Situation

West Texas was somewhat confused. Gulf wanted to continue purchasing 25,000 barrels daily from the Keystone Ellenburger field. A special line is being built from Judkins to Port Arthur to handle this oil. Cuts for most of the larger fields, however, seemed in order. Shell and Stanolind wanted Wasson reduced. Stanolind asked that this field and Slaughter each be reduced 10,000 barrels daily to 50,000 barrels, and of course there was the Humble 10 percent cut spread over the whole area. Ohio asked that any reduction for West Texas be spread uniformly over the district.

Revised nominations filed at the August 31 hearing showed a demand for 2,596,812 barrels of crude, 191,119 barrels higher than nominations received at the hearing Friday. It appeared likely that the commission would order a 200,000 barrel cut, and that it would apply uniformly on a percentage basis. Thus purchasers would have to go to the fields where the oil was available.

The commission announced that all exceptions to rule 23 in the East Texas field will be cancelled on May 1, 1946 Under this rule, operators whose wells ceased flowing could transfer an allowable to other wells on their leases without buying additional pumping equipment. This was a war measure, and the commission thought that the needed pumps could soon be obtained.

Future Activity of Elk Hills Is Topic of Standard-Navy Discussion

Standard Oil Company of California representatives met with Navy officials September 12 to discuss the future of the Navy's Elk Hills petroleum reserve.

Producing at the rate of 65,000 barrels daily in the final days of the war, the reserve now is back on a basis of 15,000 barrels daily from the company's reserve, the Navy having shut down its 50,000 barrel daily production August 15.

Standard officials are anxious that the department agree to maintain production at the 15,000 barrel rate until the company has taken out the 25,000,000 barrels contemplated under the contract covering wartime development of the field. So far, the company has taken out about 14,500,000 barrels.

Company officials took the position that Elk Hills oil still is needed despite the termination of hostilities. They estimate that California production will be cut back about 125,000 barrels daily as a result of the Navy's shut-in and reductions in drilling rates in fields which have been producing above maximum efficiency, and pointed out that the state will soon have no import oil.

Three hundred wells have been drilled in the field under the program. More wells will be put down to determine more definitely the potentialities of the partly developed shallow zone and the practically undeveloped deeper Stevens zone, but there is no thought of any production beyond that necessary to keep the field in operating shape—a volume which the company believes should not be arbitrarily determined now but calculated later when more definite information regarding the reserve is available. It is feared that if the department cuts production back to the minimum necessary to keep the field intact the company will lose some degree of business and also the current usefulness of the Elk Hills oil.

Under the law, the Navy can exploit the field only in the event of an emergency. The company estimates that it has expended more than $9 million in the field, where its reserves now may be tied up for an indefinite period of years.

Company officials reported that operations in the field have been "in the black" although so far the oil withdrawn has cost almost $1 per barrel in investment, but are hopeful of being permitted to continue to withdraw oil at about the present 15,000-barrel rate so as to keep their investment fluid.

There appears to be no liklihood of the government buying the company out of the reserve. The cost of such a transaction would be many millions of dollars, which it is not believed Congress would care to appropriate in the face of demands for economy, and at the same time company officials point out that tax and other problems make selling undesirable from their point of view.

While there appears to be a determination on the part of the Navy, supported by some circles in Congress, to retain the present oil reserves, there is no sentiment whatever for setting aside any new reserves, in either the department or Congress. There does appear, however, to be some toying with the idea of stockpiling oil, but the mechanics of such a plan thus far have been baffling.

Drilling Contractors to Meet

Ralph K. Davies, deputy petroleum administrator for war, has been invited to address the annual session of the American Association of Oil Well Drilling Contractors to be held in Oklahoma City, Oklahoma, October 1-2. Brad Mills, association secretary, indicated that if Davies is unable to attend a PAW representative likely would be named to deal with current problems which confront drilling contractors.

The meeting is expected to be one of the first large gatherings of oil industry representatives in the Southwest. The arrangement committee includes W. T. Payne, chairman; Frank Porter, Ed J. Kubat and J. Stephens.

Crude Oil Production in the United States

(Estimates compiled by The OIL WEEKLY. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED Sept. 15	Sept. 8
Alabama	1,000	1,000
Arkansas	78,800	78,650
California	882,500	880,000
Colorado	10,450	10,750
Florida	200	
Illinois	201,450	205,200
Indiana	14,850	13,600
Kansas	273,600	255,200
Kentucky	28,750	28,450
Louisiana	362,650	362,200
North Lousiaina	70,650	70,200
South Louisiana	292,000	292,000
Michigan	48,800	45,200
Mississippi	53,700	55,750
Missouri	100	100
Montana	21,465	24,435
Nebraska	850	850
New Mexico	108,300	108,275
New York	12,750	13,875
Ohio	6,850	7,110
Oklahoma	392,050	390,150
Pennsylvania	32,200	38,350
Tennessee	35	35
Texas	1,882,925	1,889,500
Upper Gulf Coast	467,750	467,700
East Texas Field	315,200	315,300
Rest of East Texas	128,425	128,450
Lower Gulf Coast	217,900	220,500
Southwest Texas	57,600	58,850
South Central Texas	16,150	16,800
West Texas	450,100	452,000
North Texas	141,800	141,900
Panhandle	88,000	88,000
West Virginia	8,200	9,315
Wyoming	106,800	112,400
Total United States	4,529,275	4,530,395

Lubricating Oils and Greases Sold as Surplus

Greater part of the oil products so far declared surplus by the government and turned over to the Reconstruction Finance Corporation for disposal has been in the form of lubricating oils and greases, it was disclosed last week by an RFC report on surplus operations.

Up to July 30, the report showed, oils and greases costing the government $913,713 had been turned over, of which $314,520 worth had been sold for $148,984.

Other products received by RFC included gasoline and liquid hydrocarbons costing $741, $205 of which was sold for $111; naphtha solvent and finished light products costing $30,898, $18,721 of which was sold for $18,942; kerosine costing $4422, $218 of which was sold for $206; fuel oils costing $1645, $842 of which was sold for $657, and petroleum asphalts and road oils costing $16,643, $80 of which was sold for $100.

The report disclosed that oil well machinery costing the government $563,086 has so far been declared surplus, and that $466,057 worth has been sold for $402,912.

Anderson Foundation Sells Oil Properties to Sterling

Purchase of the oil properties of the Anderson Foundation by Sterling Oil & Refining Corporation has been announced by R. S. Sterling, chairman of the board.

The properties include approximately 16,000 acres of leases, wholly or partly owned by the Anderson Foundation, 17 oil wells and 2 gas producers. The properties are located in the Heyser, Ragsdale and Nursery areas of Victoria County; Stewart, Mauritz and LaSalle fields, Jackson County; Conroe field, Montgomery County; Batson pool, Hardin County; Randado field, Jim Hogg County, and Saranosa field, Duval County.

The Sterling company also acquired the interest in some of the leases held by Roxie Wright. Total consideration was about $800,000.

Immediate development of some of the newly acquired acreage is planned by Sterling.

The oil properties of the Anderson Foundation were formerly owned by Seaport Oil Corporation.

During the past several months Sterling has been actively engaged in the development of acreage in the Hope field, Lavaca County.

Butane Gas Rules

The gas utilities division of the Texas Railroad Commission will hold its first hearing September 17, to determine the effects on its butane gas rules of a statute enacted at the recent legislative session.

Under the law, companies may be required to have a license for each installation handling this gas, even though it is in the field.

Emergency Program Increases Tanker Fleet to 500 More Than Prewar Mark

United States flag tankers under government control exceed 750 in number with a deadweight tonnage in excess of 11,000,000, it was disclosed last week by Maritime Commission records.

More than 650 merchant tankers have been built under Maritime Commission authority since 1939. War losses up to V-E day numbered 104, indicating that the United States today has an oil-carrying fleet some 500 vessels greater than the prewar fleet.

Maritime Commission figures disclose that not more than a score of the tankers built since 1939 have been turned over to other countries. Figures which can be released show that one T-2 Type tanker was bareboated to the Dutch, eight T-2's to the Norwegians, one 14,000-ton vessel and two smaller ones to the British and five T-2's to the Russians.

During the period from 1939 through August 31, 1945, the commission reported, 616 large ocean-going merchant tankers and 9,933,033 deadweight tons were built, together with 39 large ocean-going military tankers of 673,354 deadweight tons, 36 coastal and inland merchant tankers of 95,651 deadweight tons and 35 inland and coastal navy oilers of 58,871 deadweight tons, a total of 726 vessels of 10,760,909 deadweight tons, 652 of which, totaling 10,028,684 deadweight tons, were merchant ships.

As of May 31, last the latest date for which figures are available, United States flag tankers under government control numbered 737 of 10,911,800 deadweight tons, exclusive of Army and Navy carriers and tankers bareboated to other countries, and probably 50 more vessels have been delivered during the past three months to add to that total.

Information regarding the tanker fleets of other nations is being compiled by the War Shipping Administration which, when completed and released from security restrictions, will give a full picture of the world oil-carrier situation.

Cowden Proposes World Petroleum Cooperative

Immediate incorporation of an International Cooperative Petroleum Association was proposed at a conference in London, England, last week, by Howard A. Cowden, president of Consumers Cooperative Association, with headquarters in Kansas City.

Cowden suggested two plans for entering the field: one would set up the association on a brokerage basis, requiring only about $600,000 of operating capital. The second plan provides that the association shall enter into every phase of the petroleum industry, including crude oil production, operation of pipe lines and tankers, and refining. The more comprehensive plan, he estimated, will require slightly more than $15 million capital.

Lower prices for petroleum products to European consumers would be a direct result from such an association, Cowden believes: "Owned by cooperatives of many countries," he said, "on a one-member-one-vote basis, it would be a start toward obtaining for European consumers some relief from relatively high petroleum prices. In time it would get title to oil-bearing lands on a basis that would be fair to the people of the country providing the raw material. Such concessions might well be in the Middle East, or in South America, or in the state which will have a surplus of crude oil after the war—Texas. Refineries can be built strategically to serve the greatest number of members most efficiently. Tankers, which should be relatively cheap, now that the war is over, eventually can ply the Seven Seas in the service of cooperative members."

Cowden proposed to establish a world petroleum co-op in 1937, in Paris, at a meeting of the International Cooperative Wholesale Society, but the war prevented action on the proposal.

In the meantime directors of English and Scottish cooperatives, and three officials of Swedish cooperatives, have been in Kansas City for talks about a world co-op. Sweden already has a petroleum co-op, with five large-scale cooperatives as members, and this organization will likely become a member of the world co-op, if established. Interest in the proposal has been expressed by cooperative leaders in many countries, particularly since Cowden presented the matter to delegates in small meetings at the world security conference in San Francisco, last May.

Suggests Gasoline Tax To Help Build Airports

Imposition of a special tax on high-octane aviation gasoline to meet the cost of the public airport program, which contemplates federal assistance for states developing airport facilities, was recommended to Congress September 10 by Senator Johnson of Colorado.

Johnson contended that the gasoline taxes on motorists are for the purpose of supporting the highway system and suggested that the aviation industry should be similarly taxed to meet the federal contribution to the states for airport development.

Majority Leader Barkley contradicted Johnson's statement that gasoline taxes pay for roads, pointing out that the government-aid highway program was adopted in 1916 but federal gasoline taxes were not imposed until 1929 or 1930, to raise about $150,000,000 "which we could not find anywhere else, to enable the federal government to pay its operating expenses."

TGT Asks Permit for Line In Hidalgo County, Texas

The FPC has received an application from Tennessee Gas and Transmission Company for authority to construct approximately 95 miles of 16-inch pipe line from the Salvador field in Hidalgo County, Texas, to its main transmission line in Nueces County, together with a dehydration plant.

The application revives a project rejected by the commission last June, the company explaining that at that time it was contemplated that the line would be operated at a small percent of its capacity whereas it now is in a position to operate it at full capacity.

The proposed line would have a capacity of approximately 99,400,000 cubic feet per day at a pressure base of 15,025 pounds.

The company reported that it has contractural arrangements with Gulf States Oil Company to purchase natural gas from the San Salvador field, and is negotiating with the Magnolia Petroleum Company, Transwestern Oil Company, Sinclair Prairie Oil Company and other operators in the Seeligson field for the purchase of a minimum of 20 million cubic feet per day of casinghead gas which is now being vented to the air. It is also claimed that reserves are available along the proposed line from The Chicago Corporation or its nominees in the Los Indios, La Reforma and Seeligson fields.

The over-all capital cost of the proposed facilities will be $2,260,422, and the company contended that they are necessary in order to prevent interruptions of service due to restrictive orders which have been issued by the Texas Railroad Commission affecting its present sources of gas supply.

TGT Interest Is Sold By Chicago Corporation

A group of investment bankers, headed by Stone & Webster, Inc., has purchased the interest of The Chicago Corporation in Tennesse Gas and Transmission Company for a reported consideration of $10,500,000.

TGT owns and operates a natural gas transmission pipe line extending from the Stratton-Agua Dulce field near Corpus Christi, Texas, to West Virginia.

Keystone Line Reversed Following End of War

The Atlantic Refining Company has reversed the flow in its Keystone pipe line, which extends from Philadelphia to Pittsburgh, and prior to the war was sending gasoline and products into its marketing area west of Harrisburg. Shortly after Pearl Harbor this line was used to bring crude to its Philadelphia refinery.

The Keystone pipe line is eight inches in diameter and has a daily capacity of 25,000 barrels.

Operations Further Cut Back in Line With Postwar Decline in Demand

The impact of the war's end upon the petroleum industry was strongly in evidence in statistics on operations during the week ended September 8. Crude oil production in the United States came down sharply, under the lower allowables scheduled for this month, and there was a further reduction in refinery runs of crude.

The cut-back in crude production was not too soon, for in the week ended September 1 there was an accumulation in storage of 3,356,000 barrels of crude, or an average of 480,000 barrels daily. However, the first week of operation under September allowables brought a cut of 358,000 barrels per day in crude output, which thereupon was not far out of balance with current reduced demand.

With refinery runs further reduced and sharply lower than several weeks ago, there were declines in production of each of the major products. However, the refineries still were turning out enough or more than enough of these products, as evidenced by additions to stocks in amounts exceeding a million barrels for each of the three principal general categories: gasoline, distillate fuel oil, and residual fuel oil. But in view of relatively low inventories generally and seasonal considerations, these additions to stocks were not cause for anxiety.

United States crude production averaged 4,518,000 barrels daily in the week ended September 8, the American Petroleum Institute reported. That was 358,000 barrels a day less than output in the final week of August and 426,000 a day less than the all-time peak production of 4,944,000 daily reported in mid-July. The new production rate was under last year's trend by 171,000 barrels daily or 3.6 percent.

Crude runs to stills averaged 4,640,000 barrels per day in the week of September 8, down 45,000 from the week before and off an even 500,000 daily from the record runs of 5,140,000 a day established in the week ended August 18 this year. Nevertheless, refinery runs were still 6000 barrels a day above those in the week ended September 9 last year.

Crude oil stocks in the United States totaled 215,169,000 barrels on September 1, the Bureau of Mines reported. That amount included 3,356,000 barrels added during the week ended on that date. It was still, however, a low figure for crude inventories, about 8 million barrels less than the 223,482,000 barrels held September 2 last year.

Gasoline production of 14,853,000 barrels in the week ended September 8 was 51,000 less than for the previous week and 453,000 barrels or 3.1 percent more than production in the corresponding week last year. Total stocks increased by 1,012,000 barrels within the week, having risen to 85,230,000 barrels, and that amount was about 7 million barrels or 9 percent more than the 78,110,000 barrels held a year previously. Civilian grade gasoline stocks were increased by 1,513,000 barrels to a new total of 49,112,000 barrels, compared with 41,018,000 of civilian grade held at the corresponding time last year. Military and other grades were reduced by 501,000 barrels in declining to 36,118,000 barrels, and that amount was about a million barrels less than the 37,092,000 barrels on hand a year ago.

Production of gas oil and distillate fuel oil totaled 4,478,000 barrels during the week ended September 8, a decrease of 552,000 barrels from the week before, although 96,000 barrels or 2.2 percent more than output in the like week last year. Stocks increased by 1,330,000 barrels, a seasonally normal trend, and then amounted to 42,189,000 barrels, or 473,000 barrels (1.1 percent) more than the 41,716,000 barrels held September 9 last year.

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gasoil and Distillate Stocks Barrels	Gasoil and Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
Highs:												
1941	4,337	11-22	4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	47,861	11-14	95,857	1- 8
1943	4,436	11-13	4,331	12- 4	245,752	5-29	94,159	3-20	47,187	11-27	72,881	1- 2
1944	4,762	9-30	4,798	12-30	240,992	1- 1	89,162	4- 1	48,863	10-28	64,744	10- 7
1945	[1]4,944	7-14	[1]5,140	8-18	224,079	6- 2	99,012	3-24	42,189	9- 8	56,074	1- 6
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 3
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,382	4-12	90,914	7-13
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-18	232,191	1- 9	68,182	10-16	30,732	4- 3	57,596	12-25
1944	4,357	1- 1	4,228	2-12	220,258	9- 9	76,302	1- 1	30,232	4-19	49,737	3-18
1945	4,518	9- 8	4,640	9- 8	211,813	8-25	84,218	9- 1	26,483	3-17	38,548	5-26

TRENDS OF 1944 AND 1945

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gasoil and Distillate Production Weekly	Gasoil and Distillate Stocks Weekly	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1944:									
January 1	4,357	4,453	240,992	13,192	76,302	4,575	42,310	9,141	57,380
January 29	4,400	4,359	240,251	13,427	81,075	4,054	37,266	8,889	52,857
February 26	4,423	4,377	237,137	13,183	85,248	4,558	33,766	8,952	51,387
March 25	4,385	4,443	236,285	13,362	87,287	4,979	31,319	9,018	51,669
April 1	4,383	4,435	234,667	13,824	89,162	4,450	30,530	8,367	51,326
April 29	4,431	4,300	235,342	13,126	88,342	4,284	30,236	8,398	49,985
May 27	4,514	4,532	234,423	13,502	86,468	4,702	32,035	8,568	49,812
July 1	4,587	4,638	228,860	14,052	83,559	4,496	35,360	8,872	52,235
July 29	4,608	4,627	225,112	14,115	82,665	4,833	38,135	8,900	56,280
August 26	4,667	4,698	222,931	14,112	80,740	4,566	41,453	8,680	59,839
September 30	4,762	4,775	222,393	14,494	78,028	4,622	45,329	9,292	64,226
October 28	4,740	4,658	223,235	14,117	79,058	4,772	48,705	8,985	64,382
December 2	4,712	4,693	221,591	14,853	80,427	4,082	45,832	8,981	61,727
December 9	4,704	4,552	220,258	14,611	80,880	4,056	44,430	8,923	60,458
December 16	4,695	4,537	222,075	14,145	82,747	4,353	42,413	8,727	59,280
December 23	4,729	4,682	222,575	14,635	83,355	4,605	40,846	8,798	58,509
December 30	4,705	4,798	222,998	15,342	86,614	4,257	39,495	9,156	57,430
1945:									
January 27	4,727	4,756	221,310	14,957	88,223	4,843	33,651	9,252	51,119
February 24	4,777	4,803	219,351	15,500	95,972	4,958	28,753	9,084	46,713
March 31	4,781	4,677	223,782	14,644	98,758	4,548	26,889	9,184	41,745
April 28	4,805	4,780	223,474	14,633	94,068	4,636	28,273	9,379	39,813
May 26	4,887	4,950	222,831	15,194	89,121	4,667	29,184	9,670	38,548
June 2	4,859	4,804	224,079	15,317	88,696	4,857	29,819	9,437	39,022
June 9	4,853	4,827	221,552	15,256	87,896	4,842	30,339	9,382	38,996
June 16	4,888	4,915	221,932	15,132	87,504	5,342	30,397	9,252	39,482
June 23	4,898	5,002	220,974	15,367	87,462	5,014	31,761	9,558	39,893
June 30	4,903	4,999	220,781	15,546	86,472	4,910	32,213	9,077	40,488
July 7	4,886	5,006	217,250	15,082	86,329	4,875	33,667	9,238	40,754
July 14	[1]4,944	4,945	216,355	15,349	85,401	5,197	34,804	9,337	41,489
July 21	4,944	4,927	218,108	15,430	85,930	5,090	35,458	9,071	42,480
July 28	4,930	4,996	218,507	16,106	86,008	4,598	36,071	9,586	42,283
August 4	4,922	5,077	215,382	16,053	84,812	4,758	36,721	9,451	42,842
August 11	4,934	5,072	214,098	15,547	86,307	5,082	36,977	[1]9,434	42,927
August 18	4,934	[1]5,140	211,910	15,890	85,985	[1]5,344	38,675	9,934	44,845
August 25	4,892	4,931	[4]211,813	15,986	84,693	4,960	39,782	9,356	46,201
September 1	4,876	4,685	215,169	14,904	84,218	5,030	40,859	8,528	46,807
Sept. 8, 1945	**4,518**	**4,640**		**14,853**	**85,230**	**4,478**	**42,189**	**8,240**	**47,871**
Sept. 9, 1944	4,689	4,634	[5]223,482	14,400	78,110	4,382	41,716	8,928	60,722
Change:									
In week	—358	—45	+3,356	—51	+1,012	—552	+1,330	—288	+1,064
In year	—171	+6	—8,303	+453	+7,120	+96	+473	—688	—12,851
In year	—3.6%	+0.1%	—3.7%	+3.1%	+9.1%	+2.2%	+1.1%	—7.7%	—21.2%

[1] All time peak. [2] Lowest between January, 1922 and July 1, 1944. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Lowest since December, 1921. [5] Stocks, September 2, 1944.

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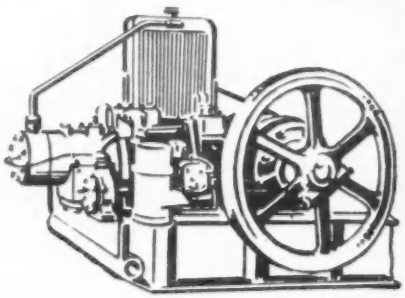
Superior engines 
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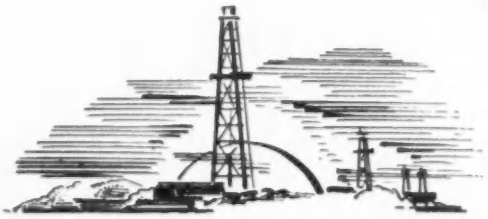
pendable  working ho

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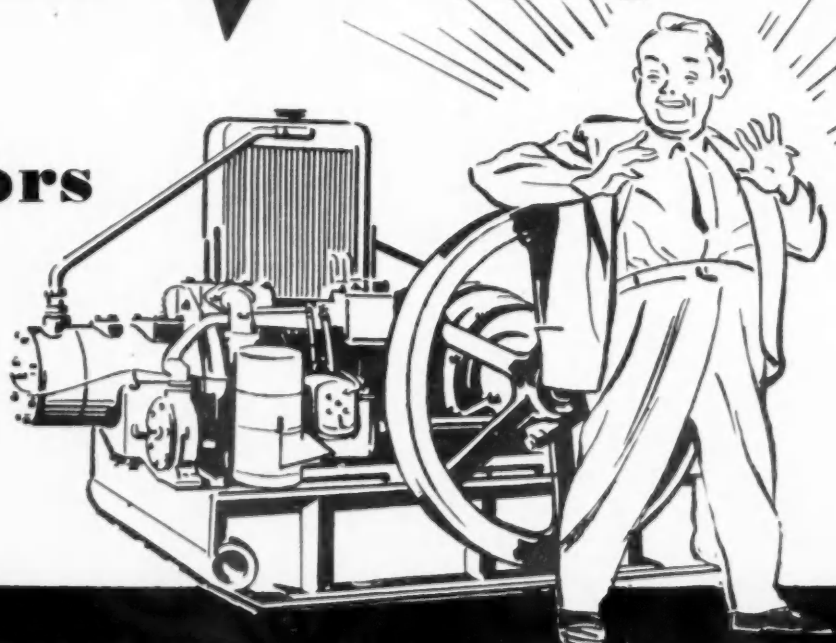
operators  who ow

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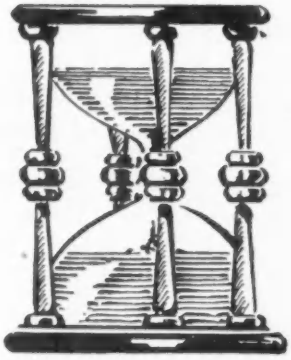

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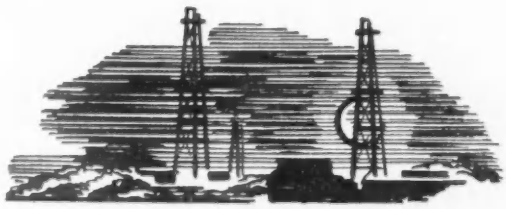

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General Sales Offices: Toledo, Ohio; Division Offices: Denver; Ft. Worth; Pittsburgh; Tulsa; Torrance.
Export: The National Supply Corporation, 30 Rockefeller Plaza, New York, N. Y., U. S. A.;
River Plate House, 12 South Place, London, E. C. 2.

Shell Authorizes Laying of 27-Mile Line in West Texas

Shell Pipe Line Corporation has authorized the construction of a 27-mile, 8-inch unit that will parallel its 6-inch carrier that extends southwest from the TXL field, Ector County, via the Wheeler field, Winkler County, and the Monahans field, Ward County, connecting with its New Mexico-West Texas system at Monahans station, Ward County.

The former two fields produce from the Ellenburger and Devonian, while the Monahans area produces from the Ellenburger and two Clear Fork horizons. All are dependent upon the company for an outlet. The smaller line will be available for the handling of sour crude.

Gulf Awards Contracts for West Texas-Port Arthur Line

Contracts have been awarded for the construction of Gulf Refining Company's 450 miles of loops to facilitate the movement of sweet crude from the Keystone and other West Texas fields to its refinery at Port Arthur.

J. R. Horrigan Construction Company of Houston was awarded contract to construct 126 miles of 10 and 12-inch loops from Sour Lake toward Port Arthur, and loops south of Chester, east of Ranger and east of Clyde.

Oklahoma Construction Company of Dallas will lay 120 miles of 8 and 10-inch pipe on the western end of the line near Midland and Judkins.

Associated Contractors and Engineers of Houston was awarded contract to lay approximately 250 miles of 8, 10 and 12-inch loop beginning south of Lufkin and extending to near Clyde.

This project, costing $8 million, will increase the company's Permian Basin outlet to 115,000 barrels daily.

Delhi Field, Louisiana, Outlet Is Put in Operation

A new 17.9-mile, 6-inch pipe line from the Delhi field, Richland Parish, Louisiana, to a barge loading terminal at Talla Bena on the west bank of the Mississippi River has been placed in operation by the Sun Pipe Line Company.

This is the first pipe line outlet for the field. J. R. Horrigan Construction Company, Houston firm, was the contractor.

Hugoton Gathering Line

Anderson Brothers, Houston pipe line contractors, have completed 19 miles of 16-inch and 24-inch gathering lines in the Hugoton gas area, Kansas, for Northern Natural Gas Company.

Stanolind Negotiating for Humble Gathering System

Stanolind Pipe Line Company is negotiating for the purchase of the Humble Pipe Line Company's gathering system in the north portion of the West Texas district and embracing the Wasson, Waples-Platter and Ownby fields to assure ample crude for its 16-inch trunk line from the nearby Slaughter field to Drumwright, Oklahoma, and points north. Humble's runs from the above fields averaged 25,500 barrels daily during August, but a substantial reduction was applied September 1. This oil was routed through a loop system to Hobbs, New Mexico, thence to the West Coast.

Work on 600-Mile Natural Gas Line to Begin October 1

Construction will begin October 1, on The Great Lakes Pipe Line Company's 600 miles of eight-inch natural gas line. The project includes a 200-mile line between Barnsdall, Oklahoma, and Kansas City, Missouri, and an extension from Kansas City to Omaha, Sioux City, Iowa, and Sioux Falls, South Dakota.

Work is under way at the Sioux City and Sioux Falls terminals with D. C. Bass and Sons, Enid, Oklahoma, as contractors for the terminals.

Anadarko Basin Sees Accelerated Leasing

Accelerated leasing activity in the Anadarko Basin, centering principally in Caddo County, Oklahoma, was noted as a number of major oil companies and independent operators were reported filling in blocks and assembling new spreads. Southeast of Bridgeport, Magnolia Petroleum Company has approximately 2500 acres of leases including assignments from John W. Baker on a large part of the spread which is in Township 12N-11W. Frank Buttram and Mid-Continent Petroleum Corporation have leases near the Magnolia block.

Northeast of the town of Anadarko, Superior Oil Company of California, C. A. Noble and others are taking numerous leases in Township 8N-9W. Others who have taken leases in the general area include J. W. Holmes, Elmer L. Parr, Lee Adams, Don E. Baldwin and R. J. Raymond. This township was practically unleased prior to recent activities which include important strikes in McClain, Grady and Major counties.

Separate Measurement is Ordered on Texas Leases

The Texas Railroad Commission has entered an order requiring the separate measurement of liquid hydrocarbons on leases where both crude oil and such liquids are produced. Separate tanks and separators are to be provided unless the gas and liquid goes directly to a cycling plant.

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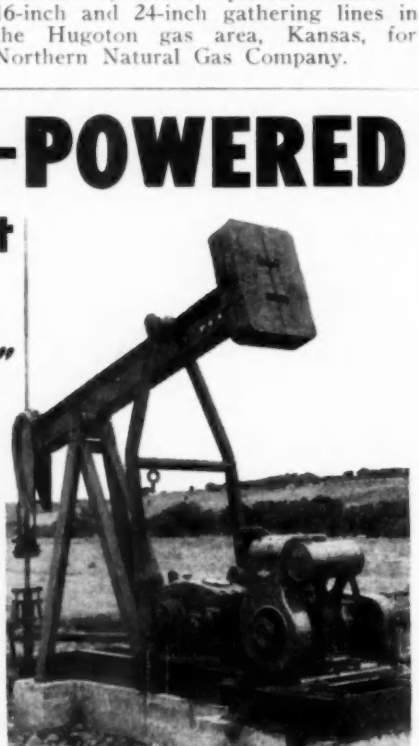

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☆ Oklahoma

Cimarron, Jackson Counties Are Given Pool Openers

Pure opens pool in Panhandle area; shallow pool indicated for Jackson County; Halliburton opens new area east of Stillwater; Cheyarha pool extended to southwest; Seminole County activity on increase; "dry" hole reworked, makes good gasser.

Cimarron County: The Pure Oil Company appears to have a pool opener nearly three miles northwest of the small Keyes pool at Oklahoma-State 1, SE SE NW 7-5n-8ecm, last reported spraying a small amount of oil while being cleaned out. At total depth of 5160 feet and with casing set at 4779 feet, the wildcat topped Cimarron sand at 4786 feet and perforated between 4786-90 feet. After acidizing with 500 gallons the well swabbed 10 barrels of oil and about 6 barrels of water in 15 hours plus 250,000 cubic feet of gas. The hole began to cave and while cleaning out the well sprayed oil. Testing continues.

Jackson County: What is believed to be a new Permian producer for Southwest Oklahoma looms at The Texas Company's Holt 1, NE NE SE 8-1n-19w, near Humphreys, although additional tests will be necessary to determine depth and age of formation. The wildcat was drilled to 2976 feet, plugged back to 2885 feet, then to 1885 feet, and after being bailed down it suddenly headed and flowed considerable high-gravity oil in the annular space between the oil string and the surface pipe. The oil is believed coming from a sand around 600 feet. A successful completion will revive activity in the Southeast Jackson and Northwest Tillman County area.

Payne County: E. P. Halliburton has opened a new area 7 miles northeast of Stillwater and about 6 miles west of the Garr district at Drum 1, NW SE SE 6-19n-4e. The Well was pumping about 10 barrels of oil daily from Bartlesville sand after being shot with 30 quarts between 3731-38 feet. Future prospects are uncertain since the test first swabbed and pumped considerably more oil, as much as 75 barrels in a 24-hour period, before settling to its present low rate. No large production is in the immediate vicinity.

Seminole County: The Cheyarha pool, opened by Gulf Oil Corporation last year, was extended more than ½ mile southwest by the best Booch sand well completed in that general area for some years. Ilco Corporation's Allred 1, NW NE NW 8-9n-7e, flowed nearly 1000 barrels of oil plus 2 million cubic feet of gas on initial production test from the Booch, topped at 3585 feet. A number of new locations have been staked.

Incidentally, operators are paying more attention to many old Seminole areas. Some wildcats are being drilled but emphasis is on pool wells and edge or flank tests. Development is the result of new ideas gleaned from Seminole geology and drilling.

Okfuskee County: Reworking an abandoned hole west of Weleetka, Amerada Petroleum Corporation completed a better than 14 million cubic-foot gasser at Barry 1, NE NE SW 23-10n-10e, in an area where some gas production has been developed and less than 3 miles from a new gas discovery. Production is from Cromwell sand topped at 3211 feet and perforated at 3157-162 feet. The discovery is Amerada's Canard 1, SE SE NE 16-10n-10e, also from Cromwell sand topped at 3309 feet. The new gasser is good for 10 million cubic feet of gas daily with 1300 pounds rock pressure. Both wells are awaiting pipe line connections.

Oklahoma County: Using the agate torpedo, which shoots ordinary glass marbles into the formation for cleaning out purposes, Stanolind Oil & Gas Company has completed Bednar 1, NW NW SW 23-13n-1e, to open a new Cleveland sand area north of the Jones pool. Cleveland sand was topped at 4627 feet and the formation given a marbles shot between 4627-44 feet. On pump the well is producing about 45 barrels of 35-gravity oil daily.

Major County: Hopes that an important new pool might be opened in the heart of the vast Anadarko Basin of western Oklahoma were dimmed as reports from The Superior Oil Company of California's Manning 1, NE NE NW 27-22n-10w, indicated the test soon may be abandoned. The well is being drilled "tight" but testing has been under way in the Prue sand at 6740-80 feet. When originally washed in the well flowed about 74 barrels of oil daily but subsequent testing has resulted in no increase and reports indicate that pressure has decreased and that production is down to about 40 barrels a day on swab. Because of depth the well must do much better to complete as a commercial producer.

Indian Lands Leased

Operators paid $45,081.66 in bonuses for 50 of the 104 tracts offered at the Five Civilized Tribes sales at Muskogee, Oklahoma, September 4. Anderson-Prichard Oil Corporation was highest bidder, paying $37.75 an acre for 80 acres in Garvin County. A total of 4714.52 acres were leased out of a total offering of 8789.72 acres.

Wells Completed in United States in Week Ended September 15, 1945

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS: *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama									3	3	3		26	25
Arizona														6
Arkansas	2				2				1	1	3	2	132	164
California	30	1		3	34				3	3	37	121	1,554	1,450
Colorado												2	21	19
Florida													12	1
Georgia													6	6
Illinois	27		2	4	33	13	1		5	6	39	33	1,290	1,362
Indiana	2	3		2	7				4	4	11	12	249	227
Iowa													1	2
Kansas	13	1	1	8	23	1	1		5	6	29	45	1,173	1,240
Kentucky	13			5	18		1		2	3	21	26	389	544
Louisiana	22	2		2	26				2	2	28	26	723	537
North Louisiana	13	2		2	17				2	2	19	11	280	187
South Louisiana	9				9						9	15	443	350
Michigan	6	1		3	10				10	10	20	13	541	466
Mississippi	6			1	7				3	3	10	3	267	133
Missouri									1	1	1	1	32	30
Montana												6	156	247
Nebraska													3	12
New Mexico	4			1	5				2	2	7	8	301	284
New York	15	1	10		26						26	25	791	888
North Carolina													1	
Ohio	11	5		3	19						19	11	667	682
Oklahoma	23	3		6	32	2	2		5	7	39	38	1,668	1,286
Pennsylvania	27	3	15		45						45	49	2,059	2,143
Tennessee													2	9
Texas	68	8		24	100	4	7		15	22	122	141	5,139	4,326
E.Tex.Bor. Co.'s		1			1						1	5	68	23
E. Texas Field														3
Rest of E. Texas	2			1	3				2	2	5	8	158	202
North Texas	12			12	24		4		2	6	30	40	1,239	1,001
W. Central Tex.	11	3		5	19				1	1	20	3	343	290
West Texas	25				25	3	1		6	7	32	27	1,260	1,128
Tex. Panhandle	1	4		2	7	1					7	13	428	196
G. Coast, Upper	7			3	10		2		3	5	15	12	495	406
G. Coast, Lower	7				7						7	19	732	680
Southwest Texas	3				3				1	1	4	14	351	321
S. Central Tex.				1	1						1		65	76
Utah														1
West Virginia	2	12		1	15						15	19	562	660
Wyoming												4	112	121
Total U. S.	271	40	28	63	402	20	12		61	73	475	585	17,877	16,871

* Includes distillate wells. † Includes salt water disposal wells.

☆ Kansas

Rush County Gasser May Be Important Helium Producer

Rush County gasser may be helium producer; new horizon noted for old Elbing pool; Beech Aircraft gets gas strike in Sedgwick County; big well completed in Mueller pool.

Rush County: A possible important helium gas producer was seen at Eldorado Refining Company's Urban 1, NW NE NW 21-16s-17w, discovery about 15 miles northwest of the Otis pool. The well gauged 1½ million cubic feet of non-inflammable gas daily from Arbuckle lime at 3523-37 feet. The gas is being analyzed to determine if it is helium or carbon dioxide gas.

Butler County: The Mississippi lime has been added to producing horizons in the old Elbing pool in the northwest part of the county as B. & R. Drilling Company completed Schriver 1, NE NE SW 19-23s-4e, as a 12-barrel daily pumper at 2379-99 feet. Elbing was opened in 1918, has produced about 20 million barrels of oil from Lansing, Kansas City and Viola lime formations.

Sedgwick County: Beech Aircraft Corporation, seeking natural gas to supply its big plant at Wichita, hit another gas field at McClelland 2, SW SW NE 6-29s-2e, about a mile northeast of the town of Derby and the same distance southwest of the abandoned Derby gas pool. On open flow test from Lansing lime between 2220-40 feet, the wildcat gauged 11¼ million cubic feet of gas daily.

Stafford County: One of the best wells for the Mueller pool is listed at Mid-States Oil Corporation's McCrary 1, SE SE 19-21s-12w, which tested 2124 barrels per day, natural, from Arbuckle lime at 3578 feet.

Trego County: Stains and odor in the Kansas City lime were reported at The Ohio Oil Company's Silkman 1, NE SW 31-11s-22w, possible pool opener 3½ miles southwest of Wakeeney. The lime was topped at 3700 feet and cores cut at intervals between 3700 and 3800 feet. Operator was preparing to drill-stem test.

Barton County: W. L. Hartman's Gaunt 1, SE SE NE 3-20s-13w, wildcat which looked like a pool opener, has been abandoned at 3455 feet in the Arbuckle after testing salt water. Saturation was reported between 3448-51 feet.

☆ New Mexico

Drinkard Area Extended By Structurally Low Well

Drinkard area extended south by structurally-low well; official gauge pending for Ellenbruger discovery; state's record-depth test is abandoned.

Lea County: Dekalb Agricultural Association's Elliott-Federal 1, C SW NE 6-23s-28e, south extension for the Drinkard multi-pay area, flowed at a rate of 35 barrels of oil hourly when drill-stem was run on Clear Fork saturation at 6840-6996 feet. A previous test immediately above this zone yielded salt water. This outpost entered the Glorietta at 5260 feet, Clear Fork at 5605 feet, and the Tubb sand at 6195 feet, with elevation of 3352 feet. Gulf Oil Corporation's Pike 1, a north offset and higher structurally, swabbed 78 barrels of oil on a 20-hour test after acidizing perforations at 6765-6830 feet, having made an unsuccessful test at 7248 feet in open hole.

Neville Penrose, Inc.'s, Penrose-Federal 1, Ellenburger discovery for the Penrose-Skelly area, flowed 720 barrels initial through ½-inch choke after acidizing upper perforations at 8059-89 feet. Bridge was set at 8092 feet to exclude lower perforations. At 8100-40 feet, where daily flow of 707 barrels was recorded through ½-inch choke, two offsets are underway.

Amerada Petroleum Corporation's State 1-P-B, northwest offset to the Grayburg lime discovery by Skelly Oil Company on the east side of the Skelly area, cemented 7⅝-inch casing at 3754 feet to deepen to the Clear Fork should the Grayburg lime fail to make a commercial well through perforations.

Phillips Petroleum Company's State-Lea-Mex 4, Maljamar area, was scheduled to be abandoned in unidentified shale at 13,998 feet upon the conclusion of geophysical tests.

☆ West Texas

TXL Field Devonian Sector Gets Extension of 2½ Miles

Devonian sector of the TXL field extended 2½ miles north by west; Fullerton-Devonian field outposts miss their objectives; 10 rigs active near Crane County's indicated Devonian strike for the Block 31 area.

Ector County: Sinclair Prairie Oil Company's Williamson 1, 2½ miles north by west of the TXL-Devonian field, flowed oil by heads briefly after using 600 gallons of mud acid in Devonian at 7884-8052 feet, having plugged back from barren Ellenburger at 9865-9923 feet. It is due to make a small pumper. Top of Devonian correlates 59 feet high to The Atlantic Refining Company's T. P. Land Trust 1-C, which widened the field's Devonian area 1 location northwest flowing 885 barrels of 41-gravity oil natural through ½-inch choke from perforations at 7950-8050 feet. However, the latter entered the Devonian 60 feet low to the nearest well, further confirming a sharp dip to the northwest from the discovery. Six tests situated on a direct northwest-southeast strike with the 2 Ellenburger producer, or east of this trend failed to indicate Devonian production, and are continuing to the Silurian, a prospective intermediate pay, and Ellenburger.

The Texas Company's Connell 29, Ellenburger project and 1½ miles west of the Penwell field, was drilling dry chert at 7145 feet in Devonian. Stanolind Oil & Gas Company's Scharbauer 3-Q, north edge of the Goldsmith field and prospective producer in the Clear Fork and Wichita Albany, was drilling lime at 8010 feet. Cities Service Oil Company's Parker 1, C SE NE T&P Ry. 20, Block 44, T-2-S, involving an Ellenburger test on the west side of the Harper field in obtaining leases from L. H. Wentz Interests, will be started early in October.

Gaines County: Amerada Petroleum Corporation's Jones 1-A, indicated discovery in Basal Permian and the Devonian, sealed perforations at 11,422-11,428 feet in Devonian pay, topped at 11,181 feet, after testing oil and water. Two previous perforation tests down to 11,444 feet, made to ascertain the water level, resulted in natural flows of oil and water. Next production test will be at 11,380-11,420 feet. The company switched to plastics for eliminating perforations since it required 5000 pounds pressure to effectively squeeze with cement in the lower zones. A temperature survey at 11,400 feet recorded 170.6 degrees Fahrenheit.

Argo Oil Corporation's Jones 1-A, southwest offset to the 6100-foot Clear Fork discoery for the Russell field and also a failure in the Lower Clear Fork 7700-foot pay, tested sulphur water at 8090-8190 feet. It is to be deepened to 9500 feet.

Hockley County: Magnolia Petroleum Company's Coble 1, 2¾ miles south of nearest production in the Levelland pool and the same distance north by west of a small gasser on the north flank of the Slaughter field, will set pipe for production test at 4800 feet. Nominal oil shows were logged in drilling the San Andres section to the approximate water level of the Levelland area.

Andrews County: Shell Oil Company and The Texas Company's Ratliff-Bedford 1, prolific discovery from Ellenburger perforations at 11,018-11,320 feet, was making production test of perforations at 8777-8850 feet, in Devonian, topped at 8780 feet, for dual-completion. Sinclair Prairie's Bedford 1, 1 1/16 miles south by east, failed to indicate production in the 7800-foot Permian and the Devonian, and was drilling black shale at 9050 feet. The 9800-foot Silurian is its next prospective pay zone. Sinclair Prairie's Ratliff 1, near the south line of the county, was idle for repairs in lime at 9243 feet, having entered dry Devonian at 8762 feet.

Magnolia's Cowden 1-A, C NE SW PSL 7, Block A-55, was rigging up as a west offset to Magnolia and Humble's Codwen 1, recent 7900-foot Devonian discovery in Southwestern Andrews County. Lease expirations will require considerable development in this area.

Fullerton-Devonian: Mid-Continent Petroleum Corporation has authorized 3 new tests, making a total of 6 projects, while the company has 6 of the 8 flowing producers in the 8500-foot Devonian. Frankel Bros.' University 1-I, a mile south of production, was abandoned at 8777 feet in Mississippian shale, topped at 8740 feet. Drilling was halted short of Devonian objective because of low structural position. Magnolia's Stevens 1, 2 miles west of the Devonian area, was drilling shale and lime at 8855 feet, checking low.

Means Deep: Humble Oil & Refining Company's Means 88-X, deepest active test, was drilling dry lime 13,395 feet, having tested water in the Devonian, toped at 12,210 feet.

Prospects: Humble's Buchanan 1, Midland County failure in Ellenburger at 12,170-12,574 feet, was testing Devonian perforations at 11,384-11,430 feet. In Pecos County, Atlantic's Iowa Realty 1, 3 miles northwest of the Heiner deep pool, recovered drill-pipe and was making drill-stem test of promising shows in Devonian at 5950-6009 feet. The company's University 1-A-31, prolific Devonian discovery for the Block 31 area, Crane County, was drilling Basal Simpson at 10,220 feet to explore the Ellenburger before running pipe for completion. Nine additional tests are active on

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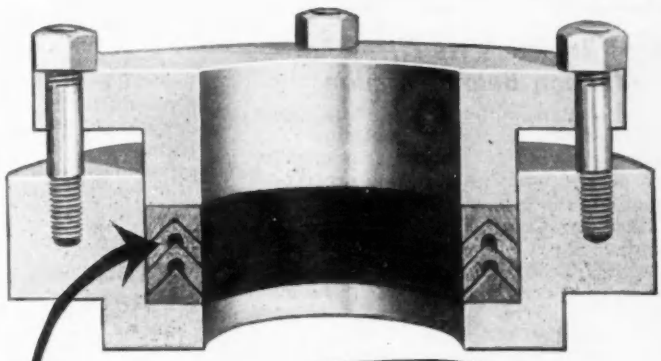

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as many 160-acre leases held by the company in the area, with the Devonian as their objective. This unusual development is due to November, 1946, lease expirations.

Farmouts: Humble has assigned C. V. Lyman the east 120 acres of the S½ of S½ PSL 16, Block B-5, Weiner field, Winkler County, retaining rights below 3750 feet and ⅛ overriding royalty on flowing wells and 1/16 on pumpers.

☆ Texas Panhandle

Area Registers Its First Production Below Permian

Texas Panhandle has first production below the Permian after numerous deep failures; Wheeler County Ellenburger prospect resumes after setting protection pipe.

Sherman County: Phillips Petroleum Company's H. E. Smith-Shirk 1, NW NW SE T&NO Ry. 174, Block 1-T, 5 miles east of Stratford, was swabbing 25 to 50 barrels of oil and a greater volume of brackish rotary fluid daily on preliminary test of perforations at 5750-55 feet. This test drilled Ellenburger section to 7014 feet, and was plugged back to 5850 feet to set pipe and test porous zone passed up last May. The producing formation has not been identified. The company previously drilled 2 semi-deep tests in the area, including L. B. Case-Omar 1, SE SE NW T&NO Ry. 144, Block 1-T, 1½ miles northeast of Stratford, that was temporarily abandoned at 4584 feet after testing water in the 2800-foot gas zone.

E. Elliott-Ezra 1, SE SE NW GH&H Ry. 198, Block 1-C, 10 miles northeast of Stratford and 3 miles south of the Oklahoma border, was plugged back from 5158 feet for completion as a gasser in the regular Permian at 2775-2815 feet.

Cities Service Oil Company-I.T.I.O. Company's Bryant 1, C NW T&NO Ry. 369, Block 1-T, was the first Ordovician failure for the county, having entered the Simpson at 4350 feet and Ellenburger at 4450 feet, with granite at 5125 feet.

Wildcats: Sinclair Prairie Oil Company's Henderson 1, Ellenburger test for the Wheeler County sector of the Anadarko Basin, was drilling dry granite-wash at 4790 feet, with 9⅝-inch cemented at 4018 feet. In Ochiltree County, Olney F. Flynn et al's Hoover-Petten 1, projected 6500-foot test on a 24,000-acre block, was drilling lime at 3935 feet. Addison W. Warner et al's Bush 1, Potter County, was drilling lime at 4480 feet, and below the regular Permian gas zone. The Texas Company's Capitol 1, Dallam County, tested fresh water from perforations at 5780-5810 feet, and failed to respond to acid treatment of perforations at 5665-75 feet. Further tests will be made. This wildcat entered the Ellenburger at 5800 feet, with elevation of 4569 feet, and granite at 6162 feet.

Oklahoma Abandonments

A total of 111 wells were abandoned as dry holes or exhausted oil and gas wells in Oklahoma between July 24 and August 24, according to the Oklahoma Corporation Commission. Exhausted oil and gas wells totaled 62, of which 54 were in the east ranges and eight in the west ranges of the state.

☆ West Central Texas

Jones County Wildcat Has Flow from Gunsight Lime

Jones County wildcat makes prolific flow from the Gunsight lime; Humble authorizes second Ellenburger test for Jones County.

Jones County: Crown Central Petroleum Corporation's Stephens 1, Block 4, J. Winters survey, and a mile northeast of the Wimberly multi-pay field, flowed 32 barrels of oil hourly through ¾-inch choke after using 1000 gallons of acid at 2575-79 feet. This strike failed to indicate production in the Wimberly field's upper pays.

Humble Oil & Refining Company has contracted to drill an Ellenburger test in the South Noodle field with location to be assigned to the NE ¼ T&P Ry. 40, Block 18, offsetting shallow production.

Hunt Oil Company's Amason 3, Subdivision 3, Samuel Jones survey and 2000 feet northeast of its 3600-foot Canyon Lime discovery for Jones County, missed the projected pay and was drilling sandy-shale at 4240 feet.

☆ North Texas

Prolific Flow Is Made by Archer Lime Discovery

Southwestern Archer County deep lime discovery makes prolific flow. Small pumping discovery indicated for Jack County; Young County wildcat shows oil in Mississippian.

Archer County: Robertson Drilling Company's Richardson 1, J. Scott survey fulfilled earlier indications of making a prolific discovery in flowing 442 barrels of 40.5-gravity oil with gas-oil ratio of 300/1 on 6-hour gauge through 12/64-inch choke from Bend perforations at 4704-20 feet. This wildcat was plugged back from Ellenburger at 5170-5222 feet.

Jack County: Hanlon & Buchannon, Inc.'s, Whitsett 1, Lot 22, BBB&C Ry. Sec. 2, A-1475, and 2 miles northeast of the Hoefle field, was setting pumping unit after swabbing 30 barrels of oil and 70 barrels of water daily at 5173-84 feet in Bend, topped at 5115 feet.

Young County: Kerlyn Oil Company and Phillips Petroleum Company's Edwards 1, northeast corner of TE&L Co. Sec. 1481 and ½ mile north by west of the Cope area, flowed oil briefly through drill stem at 5106-13 feet in Mississippian, topped at 5105 feet. A nominal oil show was passed up in the 4400-foot Bend. Pipe will be set for completion.

Cooke County: Fred Snuggs, McElreath and others' Almon-Sun 2, northwest offset to their flowing discovery of the Almon pool, 2½ miles east by north of Gainesville, pumped 77 barrels initial from Strawn sand at 2937-45 feet. Magnolia Petroleum Company's Weese 1, southeast offset to the discovery, tested salt water in the discovery zone, and was awaiting orders at 3206 feet. However, it may be deepened to the Ellenburger. Sinclair Refining Company has connected to the discovery lease.

Magnolia Petroleum Company's Dillard 1, deeper Strawn sand discovery for the Sivells Bend field, failed to maintain its flow of 189 barrels of oil in 4 hours at 7400-7413 feet. Pumping unit will be installed. Ed Cox and Jake Hamon's Davis-Texaco 1, southeast outpost, was drilling shale at 4792 feet, while Sun Oil Company's Allen 1, an outpost, was drilling shale at 6476 feet.

☆ East Texas

Freestone County Prospect Testing Pettit Porosity

Freestone County deep prospect sets pipe to test Pettit porosity; South Tyler field's second producer makes good flow; district's depth record held by Smackover project in Chapel Hill field.

Freestone County: The Texas Company's Ham 1, R. Lawson survey and 3 miles east by south of Teague, will make a production test of gas-distillate show passed up in broken Pettit porosity at 7971-97 feet in drilling to 8541 feet.

Smith County: Sinclair Prairie Oil Company's Shofner 1, Chapel Hill field, was drilling lime and shale at 12,587 feet, having established a new depth record for the district. The calling of the top of the Smackover section near the 12,000 foot level by some of the companies supporting this projected 13,000-foot test has been questioned, since it would mark the elimination of an estimated 1200-foot section of lower Cotton Valley and all of the Buckner. The top of the Cotton Valley has been tentatively called at 10,650 feet.

Phillips Petroleum Company's Hairston-Johnson 1, north offset to the company's oil discovery for the South Tyler field, was flowing 12 barrels of 45-gravity oil hourly natural, with gas-oil ratio of 6000/1 through 12/64-inch choke.

☆ East Texas Border

Gas-Distillate Field May Receive Oil Producer

Carthage gas-distillate field may get oil producer; fourth Harrison County producing area opened; wildcats in San Augustine and Nacogdoches counties have shows.

Panola County: Sun Oil Company's Sallie J. Neal 1-A, J. R. Garner survey, has revealed the first commercial oil possibility in the Panola gas-distillate field. On a 19-minute drill-stem test, using ¼-inch chokes, 3640 feet of 32.8-gravity pipe line oil were recovered from perforations in the Hill zone. Top pressure during the test was 100 pounds. Production casing has been run and attempt will be made to complete the well, which is on the north flank of the field. Skelly Oil Company and Rogers Lacy have drilled wells which are thought to have had good showings of oil, though neither has released geographical information. If the test is completed as an oil well, leaseholders in that sector may begin 40-acre spacing instead of the 640-acre unit spacing now in effect.

Harrison County: Lacy's B. C. Quinn,

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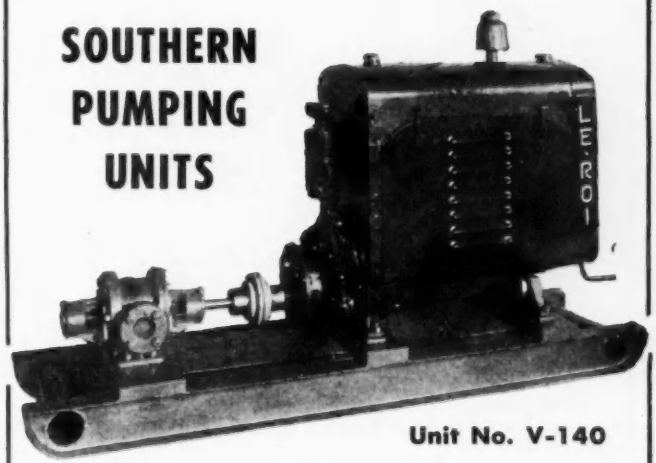

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Vashti Gibbs survey, Harleton area, has opened another producing area. Perforations were made from 6731-64 feet in the Young formation. The well washed in and flowed 100 million cubic feet of gas per day, open flow, and is waiting on official test. Casing pressure is 2500 pounds, tubing pressure 1500 pounds. Total depth is 6821 feet.

Lacy's Tutle et al 1, J. M. Clifton survey, on initial production test gauged 1,800,000 cubic feet of gas per day. Amount of distillate could not be checked due to mechanical trouble. Production is from perforations opposite 6472-86 and 6514-22 feet. Total depth is 7027 feet.

Lacy is preparing to move in materials for another wildcat, Hayman 1, E. Talley survey, 4 miles west of Harleton. Stanolind Oil & Gas Company has completed rigging up and is ready to spud in Hattie Cole 1, Charles Taylor survey, which will be a deep wildcat test south of Marshall.

Shelby County: M. E. Davis' Pickering Lumber Company 1, W. J. Brittian survey, after perforating with 192 shots from 6520-85 feet, swabbed down with slight showing of gas. Crews are preparing to reperforate. Total depth is 7500 feet.

Humble Oil & Refining Company's Pickering Lumber Company 1, St. Francois survey, is drilling below 10,708 feet.

San Augustine County: M. E. Davis' C. Thomas 1, William B. Horn survey, swabbed to 7200 feet and had a slight showing of gas. The test was shut in over-night and when opened made a small amount of gas. Crews will swab to bottom and squeeze. Total depth is 9290 feet.

Marion County: Stewart Company's Brown Estate 1, Joseph Watkins survey, is coring below 6775 feet.

Frank Hood's Lizzie Henderson 1, R. Bennington survey, was abandoned at 6738 feet. Perforations from 6110-24 feet swabbed salt water showing oil and gas.

Nacogdoches County: Magnolia Petroleum Company's W. L. Harrell 1, W. Wray survey, is drilling below 6902 feet. A core cut from 6730-35 feet recovered slightly porous lime with odor and oil stain. A 30-minute drill-stem test from 6724-35 feet, using ¼-inch chokes and 1000-foot water cushion, recovered cushion and 100 feet of muddy salt water with showing of oil.

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☆ South Central Texas

Deep Ellenburger Test in Kerr County Is Failure

Deep Ellenburger test in Kerr County is failure; Humble abandons test in Chorolette field; Bexas County wildcat resmues activity.

Kerr County: Efforts to open deep oil production southwest of Kerrville failed with Phillips Petroleum Company's Whitworth 1, W. G. Wharton survey 10, being abondoned at 6618 feet. This was an Ellenburger test and originally was projected to 5000 feet.

The only other active test in this area is The Ohio Oil Company's Charles J. Robinson 1, Ordovician test, reported drilling below 4300 feet.

Atascosa County: Humble Oil & Refining Company's A. K. McBride 1, Charlotte field, has been abandoned at 7161 feet.

Bexar County: H. A. Pagenkopf's Max Blum 1, deep test in the Gas Ridge area, is drilling below 3785 feet in sandy shale. This test has been delayed to re-cement casing.

Barker & McCune's T. J. Goad 1, wildcat south of San Antonio, is preparing to start operations. The test is projected to 3200 feet.

Bastrop County: Continental Oil Company's Willie Malina 1, wildcat north of Cistern, has been delayed with a fishing job at 7026 feet.

☆ Southwest Texas

New Gas Field Is Opened; Deep Test Is Projected

New gas field is opened in Duval County; Argo plans deep wildcat near Seven Sisters pool; Ira field well is completed; Humble to drill second test in Staggs field.

Duval County: A new gas field has been established 13 miles west of Benavides with completion of Cox & Hamon's Clara Driscoll 4, Sec. 55. Drilled to 3226 feet, operators landed 5½-inch casing at 3215 feet. Perforations were made at 3170-72 feet and 3175-78 feet and the well flowed gas through a ⅜-inch choke without a gauge. Tubing pressure was 880 pounds and casing pressure 1050 pounds. The well now is shutin.

A proposed 8000-foot wildcat has been staked by Argo Oil Corporation 5 miles

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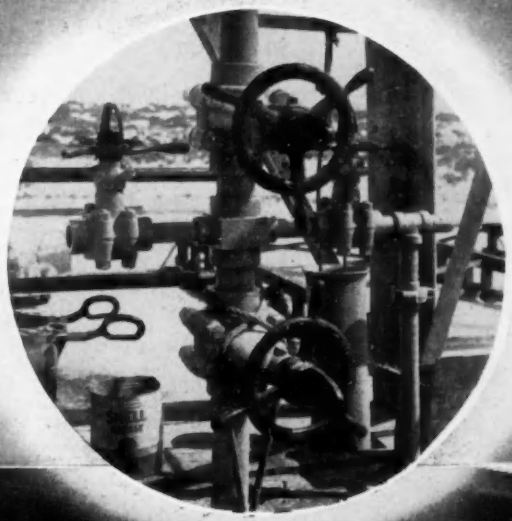

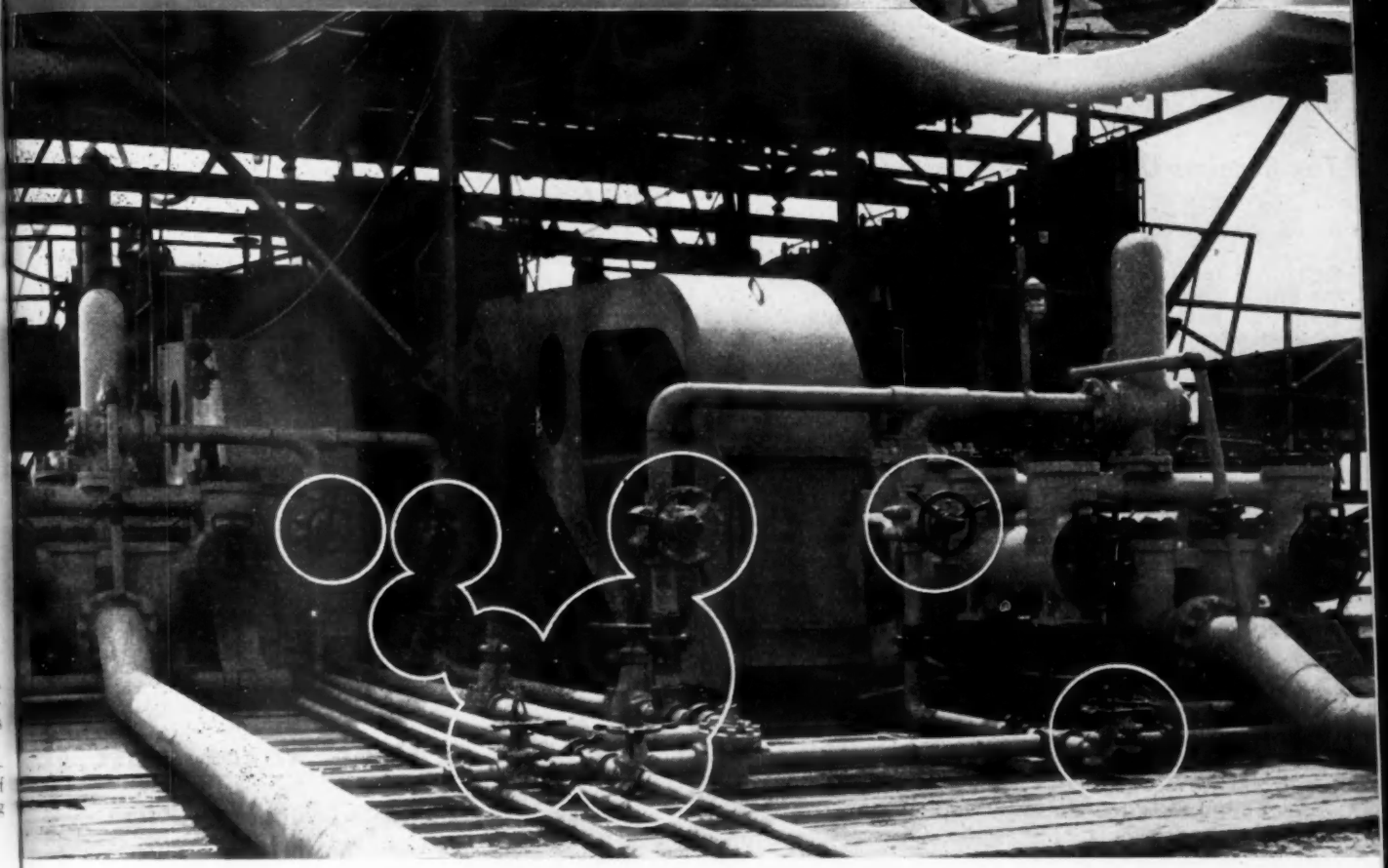

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northeast of the Seven Sisters field. The test is the John E. Murphy 1-C in BS&F Survey 112.

About 7 miles northeast of Hebbronville, Parker & McCune's Miller Ranch Company 1 has been abandoned at 4712 feet.

Starr County: Zimmerman & Staley's F. W. Seabury 1, in the Ira area 12 miles north of Rio Grande City, has been completed from sand topped at 3923 feet for 42 barrels of 45-gravity oil daily through a 3/16-inch choke. Tubing pressure was 1310 pounds and casing pressure 1420 pounds.

The same operators have staked F. W. Seabury 3 about 2000 feet south of the new producer.

Sun Oil Company has spotted M. M. Garcia 1-P, Unit 45, in the Garcia field.

Webb County: Humble Oil & Refining Company is preparing to drill a test in the Staggs field. Location has been spotted for the Juan Vela Cuellar 2 just north of the Bruni townsite and 990 feet north of the Cuellar 1 well.

Tax Receipts Up

An additional 2-cent gasoline tax levied by the Oklahoma legislature at its last session netted the state the sum of $979,037.15 for June and July and with the lifting of gasoline rationing officials predict the new tax will bring in much more in comparable periods to the state's highway fund. Half the tax is credited to individual counties for use in participating in the state-federal postwar farm-to-market road program. Oklahoma motorists pay 9½ cents per gallon gasoline tax, the highest in the nation.

☆Lower Texas Coast

Victoria County Wildcat Is Opener of Gas Field

Gas field established in Victoria County; north outpost in La Sal Vieja field is testing; Jackson, Goliad and San Patrico report new wildcats.

Victoria County: Discovery of gas field is seen at Rowan & Hope's Sally Ragsdale 3, wildcat 10 miles east of Telferner. Drilled to 4453 feet with 5½-inch casing set on bottom, operators perforated casing at 4443-52 feet and the well flowed gas before being shut in. Tubing and casing pressures were aqualized at 1800 pounds. No potential test has been made.

Willacy County: A north extension well is being tested in the recently revived La Sal Vieja field. J. S. Abercrombie and Magnolia Petroleum Company's Geis 1, about 1 mile north of the Dohe 1 discovery well, has 7-inch casing set on bottom at 10,098 feet and operators are making a squeeze job before attempting first completion at 8900 feet. The Dohe 1 was completed through perforations at 10,000-040 feet. About 1¾ miles west of the Geis 1, the same operators staked C. E. Todd 1. Proposed depth is 13,500 feet.

Jackson County: Location for a 5200-foot wildcat test has been staked 2 miles southeast of the Cordele field by the Wirt Franklin Petroleum Corporation. It is the Rose & Sample 1 in the Thomas Heard League.

Goliad County: New activity is indicated in the Boyce field with W. C. McBride, Inc., making location for August Kenne 2 in the J. W. Bergen survey.

About 4 miles east of Goliad, Santa Clara Oil Company will drill Ida P. Huggins 1, wildcat test in the Ybarbo Grant.

Karnes County: Bennett Brothers Drilling Company's O. A. Mud 1, wildcat in the Burnell area, has been abandoned at 6708 feet.

Live Oak County: Glenn H. McCarthy's C. L. Cartwright 1, wildcat in the J. M. Dickens survey, was drilling below 3340 feet in sandy shale.

Houston Oil Company of Texas' Kittie West Schreiner 1, about 4 miles northwest of George West, was drilling in sand at 6620 feet.

Calhoun County: P. R. Rutherford's T. P. Traylor 1, deep wildcat southeast of Bloomington, is a failure at 7143 feet.

San Patricio County: Activity in this area continues to show an increase with location being spotted for a 6500-foot wildcat test 10 miles northeast of Taft. The test is Chastain, Eaton and Smith of San Antonio H. G. Ritchie 1, in the D&D survey.

Humble Leases Ordnance Works from Government

Humble Oil & Refining Company has leased the Baytown, Texas, Ordnance Works, which adjoins its Baytown refinery, from the government. The lease is for an interim period, not to exceed 90 days, during which the company will use the ordnance works' facilities while final disposition of the plant is being determined.

Until recent months, this plant produced substantially more than half the toluene for high explosives used by the United Nations in World War II. Completed in 1941, the Baytown Ordnance Works was the first to make toluene synthetically from petroleum, and the first shipment of the finished product was made 47 days before Pearl Harbor. It was designed to produce toluene at the rate of 30 million gallons yearly, but by September, 1942, the production rate was double that amount.

☆Upper Texas Coast

Vicksburg Sand Production Is Opened in Kirby Field

Vicksburg sand opened in Kirby field; Columbus field extension being completed; final gauge made on Wilcox sand discovery well near New Ulm; new production opened northeast of Blue Lake.

Liberty County: Vicksburg sand production has been opened on the northeast side of the Kirby field with completion of General Crude Oil Company's R. A. Welch 13-A. It was drilled to 6506 feet after topping salt at 6498 feet; then the operator set 5½-inch casing at 5288 feet and perforated in the Vicksburg section at 5188-94 feet. The well flowed 120 barrels of 36.2-gravity oil daily through a ⅛-inch choke. Tubing pressure was 600 pounds and casing pressure 700 pounds. The Kirby field was opened in March, 1943, and regular production is from the Yegua formation between 6500 and 8000 feet.

About 11 miles southeast of the Liberty townsite, R. Olsen Oil Company of Oklahoma City located an 8000-foot

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wildcat test. It is the J. R. Richardson 1 in the John Page survey.

Colorado County: Cities Service Oil Company's John Schobal 1, James Tumlinson survey, northeast extension in the Columbus field, still is attempting completion as an oil well. Initial test at 7857-59 feet yielded 102 barrels of 39.8-gravity oil through a 13/64-inch choke with a tubing pressure of 1490 pounds. Gas volume was 744,000 cubic feet daily with the gas-oil ratio being 7220/1. The well also has shown gas and condensate production from lower sands.

Austin County: Final potential gauge has been run on Sinclair Prairie Oil Company's Schweke 1-A, Wilcox sand wildcat discovery well near New Ulm. The well flowed 117 barrels of 34.6-gravity oil daily through a ¼-inch choke from perforations at 9155-65 feet. Tubing pressure was 195 pounds with the gas-oil ratio being 1509/1. The flow was 2 percent water. Attempts to dual-complete the well in a gas and condensate sand at 9237-56 feet were not successful. This is the first well to produce low-gravity crude oil on the western side of the Wilcox sand trend.

Brazoria County: New production has been opened northeast of the Blue Lake field with the completion of Glenn H. McCarthy's T. J. McMillan Estate 1, George Robinson survey, Abstract 126. The wildcat, located on the west side of Horseshoe Lake, flowed 238 barrels of 30.4-gravity oil daily, with a trace of water, through a 3/16-inch choke from perforations at 9000-08 feet. Sand was topped at 8996 feet. This sand is deeper than that producing in the Blue Lake field.

Chambers County: Final gauge has been made on Butcher-Arthur, Inc.'s First National Bank of Goose Creek 1, discovery well in the Cedar Bayou area. The well flowed 259 barrels of 35.5-gravity oil daily through a 10/64-inch choke from perforations at 7181-83 feet. Total depth is 7517 feet with 2-inch tubing set at 7165 feet.

The Jackson Pasture field was pushed westward with completion of Gulf Oil Corporation's State 1-60. Operator perforated casing at 8130-36 feet and the well flowed 173 barrels of 40.1-gravity oil daily through a ⅛-inch choke.

Northeast of the Mayes field, Humble has spotted its M. E. Mayes 9 in the M. E. Trimble survey.

☆ South Louisiana

Section Now Has Two Tests Drilling Below 13,000 Feet

Two tests are below 13,000 feet; Houston of Texas completing first well in Mystic field; Bayou des Glaise outpost holds interest; deep test staked in Lake DeCade field.

Cameron Parish: Continental Oil Company and Yegua Corporation's A. Dobbertine 2, wildcat in the Johnson Bayou area, is the second active test in South Louisiana working below 13,000 feet. It is drilling in shale and sand at 13,010 feet.

The Pure Oil Company is preparing to start operations at Ira Hebert 1, wildcat in 31-12s-7w.

Jefferson Parish: The Texas Company's State-Barataria Bay, wildcat in Barataria Bay, is drilling near 13,500

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feet in sandy shale and is the deepest active test in South Louisiana.

Beauregard Parish: Houston Oil Company of Texas is completing its first well in the Mystic field. The company's Houston of Texas-Fee 1, 28-6s-12w, perforated casing at 8468-76 feet and is cleaning into pits without a gauge through ⅛-inch choke.

Iberville Parish: Humble Oil & Refining Company's Wilbert Mineral Corporation 6-B, outpost in the Bayou des Glaise field bottoms at 10,354 feet and operator is taking sidewall samples.

Plaquemines Parish: Gulf Refining Company has completed Lafourche Basin Levee District 15, Lake Hermitage field, as a gas-condensate producer from sand at 11,486 feet. The well flowed 87 barrels of condensate daily through a 5/32-inch choke with a tubing pressure of 4300 pounds.

Jeff Davis Parish: Gulf's Lacassine Company, Inc., 1-A, deep test in the Hayes field, is drilling below 11,665 feet in hard shale.

Tide Water Associated Oil Company's T. S. Stegall 1, wildcat on the flank of Welsh dome, is drilling below 7620 feet in sand and shale.

Terrebonne Parish: The Superior Oil Company has staked a 12,000-foot test in the Lake DeCade field. It is the State-Lake DeCade 1 in 26-19s-15e.

Allen Parish: Humble's Mrs. J. A. Bel 1-A, wildcat in the Oberlin area, is preparing to drill below protection string set at 9470 feet. A sand showing gas was logged at 9410-20 feet.

Lafourche Parish: The California Company has spotted a 9500-foot test on the Lafourche side of the Delta Farms field. It is the Louisiana Delta Farms 29 in 30-16s-23e.

Acadia Parish: Sun Oil Company's Regan 1-E, Egan field, is cemented after running 7-inch production string. Total depth is 10,893 feet.

☆North Louisiana

Big Creek, Delhi, Benton Field Extensions Testing

Extensions to Big Creek, Delhi, Benton fields testing; Lincoln, DeSoto, Ouachita Parish wildcats report good showings.

Richland Parish: Bering Oil Company's Price 1, 5-16n-8e, reported to have cored from 2950-64 feet and recovered 7½ feet of well-saturated oil sand, was running 5½-inch casing to test. Total depth is 3100 feet. The well seems certain to extend the Big Creek field ¼ mile southwest.

Roy L. Fisher et al's W. M. Spruel 1, 4-16n-8e, 1 mile south and ¼ mile east of Big Creek, recorded a flow of 5 to 7 barrels of 51.8-gravity oil in 2 hours before the well died. Swabbing failed to stimulate production, and treatment with mud acid through perforations from 2992-3008 feet were equally unsuccessful. The well is shut in until completion of C. H. Murphy, Jr., and Sun Oil Company's Spruel 1, a north offset.

R. J. Caraway Company's Bryant 1, C SE NW 35-17n-8e, washed in, flowing 125 barrels of 40-gravity oil per day through ⅛-inch choke on tubing. The new wildcat producer, between the Big Creek and Delhi fields, is flowing from perforations between 3148-65 feet. Total depth is 3563 feet, with 5½-inch casing

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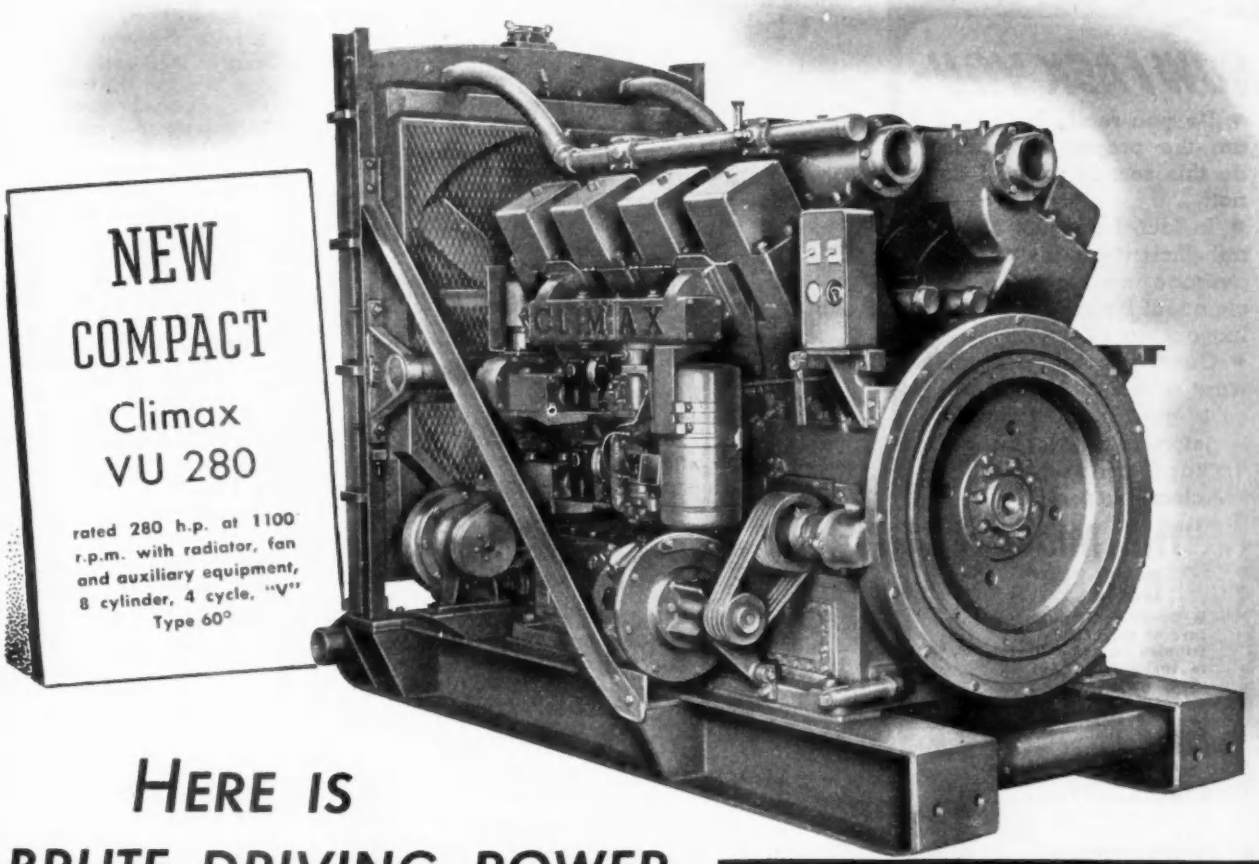

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set at that depth. Company is completing tanks and preparing to make official test.

J. E. Kemp and R. J. Caraway's Snyder 1, C SW NE 24-17n-9e, 1½ miles east of the Delhi field, is still testing gas believed to be coming from an upper set of perforations between 3313-20 feet, possibly from a leaking Joint. Perforations were made from 3364-79 feet opposite an oil sand logged on electrical survey. Report is that Sun Oil Company will take over and complete.

Bossier Parish: Barnsdall Oil Company and Sohio Petroleum Company are drilling below 8828 feet in Padgett-Bundy 1, C NW SE 17-20n-12w, with no further shows below the Davis sand. The well has indicated a 1½-mile southwest extension to the Benton field. A 68-minute drill-stem test from 8426-36 feet, using ¼-inch chokes, registered a fair blow at surface and recovered a 540-foot water cushion and 210 feet of drilling mud cut with gas. A core from 8436-40 feet carried distillate odor, as did a core from 8450-52 feet.

Lincoln Parish: The California Company's Nobles et al 1, 12-19n-4w, is reported to have plugged back into 7-inch casing set at 8864 feet, and is preparing to perforate in the Bodcaw sand of the Cotton Valley, which logged a good showing of gas-distillate. Total depth of well before plugging back is said to be 9125 feet. Operators are drilling tight.

California is reported planning another location in the area a mile east of the prospective discovery, in 11-19n-4w.

California is drilling around stuck drill pipe in W. W. Norris 1, 13-18n-1w, second test in the Tremont field, after plugging back from 9490 feet to 8850 feet. The well has logged sufficient gas-distillate saturation to insure production.

DeSoto Parish: Charles C. Lowery's Tanner 1, wildcat in 13-10n-11w, is reported certain to open a gas area from 3215-45 feet, and is estimated good for 30 million cubic feet of gas per day, and some distillate. The test was drilled to 3120 feet, where it blew out. Total depth is 3305 feet with pipe set at 3291 feet.

Ouachita Parish: California's Walter Maxey 1, 32-18n-1e, which previously was reported to have logged good showings in the Travis Peak, is again reported to have logged a showing of oil around 8390-8400 feet. Well is drilling tight below 8425 feet.

Claiborne Parish: H. W. Owens' wildcat, Thomas Crichton 1, NE 1-20n-8w, is drilling below 6492 feet in the Cotton Valley without showings. The test is seeking production from the Bodcaw sand.

Delta Drilling Company and M. J. Houston's Gladney 1, 10-21n-8w, also in the Homer area, is drilling in the Travis Peak section. James was logged from 5052-85 feet and carried salt water.

Hunt Oil Company's second test in the East Haynesville area, L. J. Birdsong 1, 15-23n-7w, showed both gas and distillate on a drill-stem test from 4140-50 feet, and is drilling below 4455 feet.

Webster Parish: Hope Producing Company's Nora Davis 1, NE NE 34-18n-8w, second test in the Ada gas area, cut a core from 5267-80 feet in the Rodessa and averted a blow-out while coming out of the hole by weighting mud. Well is thought to have a good chance at production.

West Carroll Parish: California was preparing to move in for a 7500-foot test in J. E. Hill 1, 2-19n-9e.

Madison Parish: Sohio's Etheridge 1, 3-14n-12e, is drilling below 4709 feet without showings.

Caddo Parish: United Carbon Company's wildcat, Grayson Lumber Company 1, 30-19n-15w, logged Massive anhydrite from 4460-4780 feet and is drilling below 5030 feet.

☆ Arkansas

Ouachita County Is Given New Glen Rose Oil Field

New Glen Rose field opened in Ouachita County; Patton gas-distillate field gets first oil production; second producer indicated for Strong area.

Ouachita County: McAlester Fuel Company's Charles Wesson 1, C NE NE SW 24-15s-19w, opened a new Glen Rose oil area, flowing 5 barrels of 33-gravity oil per hour through ⅛-inch choke on tubing. Perforations were made opposite the Glen Rose from 2648-80 feet. Flowing casing pressure was 375 pounds and tubing pressure 285 pounds. Testing continues. Total depth is 2954 feet, with 5½-inch casing cemented at 2878 feet. James was logged at 2860 feet. A fault was cut in the Nacatoch and Saratoga section, believed to be the same one controlling production in the shallow Stephens field northwest of Wesson 1. The well is reported 40 feet higher on structure than Deep Rock Oil Corporation's Wesson 1, a dry hole ¾-miles northwest in Section 23.

LaFayette County: The gas-distillate Patton field has its first oil producer, Barnsdall Oil Company and Sohio Petroleum Company's Moore Heirs 1, C NW SE 32-17s-24w, recorded a flow of 181 barrels of 41-gravity oil in 22 hours through ¼-inch choke on tubing. Perforations were made opposite a porous zone in the Smackover lime from 9316-19 feet. The well was treated with 2500 gallons of acid. Total depth is 9322 feet, where 5½-inch casing is cemented. Active drilling is expected in the area upon completion of the well.

Union County: Brown & Wheeler have cemented 5½-inch casing at 6350 feet in C. Clark 1, C SW SW 22-18s-12w, and are preparing to test in the Smackover lime topped at 6327 feet, through perforations. The well logged porosity at 6347 feet, checking 5 feet higher than the south offset which opened the Strong field. This will be the field's second producer.

Miller County: Barnsdall is drilling below 7563 feet in the Travis Peak in W. S. Nichols et al 1, C NE NW 20-18s-28w, wildcat seeking Cotton Valley production. No showings have been reported so far.

Columbia County: Crescent Drilling Company's wildcat Edna Hawkins 1, C SW NW 8-17s-18w, 2 miles northwest of Mt. Holly production, is drilling below 3476 feet.

White County: Lion Oil Refining Company's Nalley 1, SE NE 33-8n-7w, is drilling below 5025 feet without shows.

Arkansas County: C. E. Osborn's wildcat Stuttgart-Price 1, C NE SW 16-2s-3w, is shut down for orders at 2540 feet.

☆ Mississippi

West Heidelberg Has First Massive Sand Production

First Massive sand production established in West Heidelberg area; British-American completes producer in Cary field; Cranfield has another producer; Greene County prospect due for deepening.

Jasper County: Southport Petroleum Company's C. C. McDonald 2-A, SWc SE SW 26-1n-12e, West Heidelberg field, is testing after the well started flowing oil to establish first Massive sand production for the field. In a drill-stem test at 6474 feet, 720 feet of oil and considerable salt water were recovered in 60 minutes. Perforations were squeezed and in a second test with packer at 6406 feet the well recovered 5940 feet of oil in 2 hours. Southport has had previous success in discovering new pay zones for the field which ordinarily produces from the Eutaw horizon at about 4900 feet. In July the company's C. C. McDonald 1 opened production in the Tuscaloosa with oil of 29.5-gravity, which is higher than that coming from other wells in the field. This new producing zone of the McDonald 2-A will offer new potentials for the field, as dry holes are not infrequent in the area.

Gulf Refining Company's Sallie Dantzler 1, NWc SW SE 32-1n-13e, East Heidelberg field, has been completed with an initial flow of 103 barrels of oil per day. Production is from 2 sections of the lower Eutaw below 4906 feet. Lyons & Prentiss' J. A. Henry 1, SW SE NE 13-1n-12e, East Heidelberg area, is shut in and building tanks preparatory to a completion after a swab job in Eutaw. Well was tested at 5040-46 feet and fluid rose to top in 4 hours. Angle & Angle's George McCollum 1, wildcat in C NW SW NW 15-2n-10e, topped Massive sand at 7182 feet and is coring below that level. Tests of the Eutaw zone were discouraging with the sand showing quantities of salt water. C. E. Walters' D. C. King 1, SW SE 30-1n-12e, wildcat, is drilling below 3000 feet.

Sharkey County: British-American Oil Producing Company's F. B. Houston Estate 3, Sec 15-11n-7w, Cary field, has been completed as the first new well for the field in some time. A great deal of working over must be done, as initial flow recorded 400 barrels of salt water along with 100 barrels of oil. Production is from Gas Rock section at 3272-74 feet. The well was drilled to a total depth of 8545 feet before being plugged back but no shows were indicated in the lower horizons.

Smith County: Gulf's O. P. Foley 1, SE NW 8-10n-13w, being drilled deeper in a second flank test of the Newhome salt dome, is waiting on cement after running casing to 2484 feet. The original test was abandoned at 2269 feet but additional exploration indicated possibilities and drilling was resumed. Base of salt was located at 3513 feet and cores from 3554-65 feet recovered several feet of dark shale. Gulf's Grissom-Ainsworth 1, NEc 21-10n-14w, wildcat, is drilling below 6800 feet in gray shale with no shows.

Adams County: The California Company's A. M. Ratcliffe 5, 68-7n-1w, Cranfield field, has been completed with an initial flow of 234 barrels of 39.2-gravity oil per day. Production is from the Massive sand at 10,280-320 feet. California's L. A. Whittington 3, 44-7n-1w, Cranfield, was abandoned with a report of a show after bottoming hole at 10,325 feet in the Massive sand.

Greene County: Humble Oil & Refining Company's Harry Stover 1, NEc 20-3n-7w, which was abandoned some time ago, is rigging up to deepen. The well was previously bottomed in salt at 5983 feet. Warren Petroleum Corporation's A. J. Smith 1, NWc 11-4n-6w, is drilling below 7676 feet after cores from 7586-7600 feet recovered only shaly sand. The Eutaw was topped at 6572 feet with cores indicating considerable salt water in that horizon.

Lincoln County: Roeser & Pendleton's W. L. Case 1, SEc 8-7n-7e, southwest of the 1-well Brookhaven field, is running tubing after a drill-stem test at 10,198 feet in the lower Tuscaloosa zone recovered about 12 barrels of oil in an hour through ¼-inch tubing choke. Gravity of oil tested was 36, which is higher than that produced by the discovery well.

Lamar County: Gulf's Jonathan Davis 1, SEc NW SE 7-1n-16w, Baxterville field, has been completed with an initial flow of 130 barrels of low gravity oil on 6-hour test. Production is from the Massive sand at 8744-74 feet.

Jeff Davis County: Humble's J. H. Williams & Sons 1, 13-7n-18w, is drilling below 9636 feet after running electrical log. Cores from 9007-9244 feet recovered sand and shale with no shows indicated. Roeser & Pendleton's Fagan Estate 1, SEc 24-6n-18w, is drilling below 3272 feet after topping the Wilcox

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horizon at 3255 feet. Cores indicated sand and shale, but no shows have been reported. In the Gwinville field Humble's Denkmann Lumber Company 1, C NW SE 27-9n-19w, is preparing to make further tests after Massive sand topped at 9240 feet indicated shows of oil, although quantities of salt water were present. The well has tested fair to good shows from 7968 feet in the gas sands on down, but commercial production should come from the Massive sand.

☆ Alabama

Three Wildcats Abandoned; Haynesville Strike Testing

Three wildcat failures reported for week; East Haynesville discovery still testing.

Choctaw County: The Carter Oil Company pumped 32 barrels of oil and 34 barrels of salt water in a 12-hour test at Sam Allman 1, NE SW 5-10n-3w, discovery of the East Gilbertown field, and is testing further.

Carter's second test in the field, Caroline Moseley 1, C SW SE NW 5-10n-3w, drilled plug from 7-inch casing set at 3256 feet and cored from 3270-3330 feet, recovering sand spotted with good oil stain. Eutaw was topped at 3255 feet. Commercial production is likely from the 2600-foot zone, where good shows have been recorded.

Wilcox County: Southern Natural Gas Company's G. W. Morgan Estate 1, SE SE SW 32-12n-5e, is drilling below 6540 feet with no showings reported, and may be carried to 8000 feet if necessary.

Washington County: Wayne Refining Company's Willie Mitchell 1, Sec NW NE 12-8n-3w, is waiting on cement at total depth of 5525 feet. Perforations were made from 1066-70 feet and the well swabbed for 5 hours, testing fresh water without shows of oil or gas. It is now shut down for orders.

Clarke County: The California Company's White City Plantation 1, 6-7n-1e, topped the Massive at 3716 feet, cored, recovering sand showing salt water, and was abandoned at 4009 feet.

Danciger Oil & Refining Company is reported planning another wildcat in 21-5n-2e, which will seek 6000-foot or deeper production. Bering Oil Company is said to be planning a deep test well in 15-7n-4e, Suggsville area.

Conecuh County: Hunt Oil Company's T. R. Miller Mill Company 1, C SW SW 13-4n-11e, was abandoned without shows at 2845 feet.

Sumter County: J. H. Gwin's Allison Lumber Company 1, C SE SW 36-19n-4w, was the third wildcat abandoned at 2616 feet.

Florida

Humble Oil & Refining Company's G. C. Carleton Estate 1, C SW NE 34-38s-29e, Highlands County deep test, is drilling below 10,904 feet in lime. A drill-stem test from 10,659-678 feet recovered only water cushion, mud and salt water on a 16-hour test. No shows have been recorded at any point in the hole so far.

Collier County: Humble's Sunniland test, Gulf Coast Realty Company 7, SW NE 17-48s-30e, is drilling below 10,193 feet in dolomite.

Charlotte County: Humble's Lownes-Treadwell 1-A, C SW NE 17-42s-23e, is drilling below 9873 feet in lime and anhydrite, after cleaning up a fishing job.

Calhoun County: The Pure Oil Company's International Paper Company 2, 31-1s-10w, is drilling below 2940 feet.

Monroe County: O. D. Robinson is drilling below 6200 feet in State 1, NE NW¼ 29-59s-40e.

Tennessee Deep Tests To Get Under Way Soon

Leasing is under way in Tennessee and some deep tests are expected to spud in within the next few months. Counties attracting attention and in which wells may test the Paleozoic beds include Shelby, Fayette, Tipton, Madison, McNair, Gibson, Haywood and Madison.

In Fayette County, M. W. Shriver and others of Dallas, have taken 10,000 acres of leases west of LaGrange, where Anderson & Kerr Oil Company drilled a well several years ago. The hole is now standing within 30 feet of the top with oil.

In Shelby County, the Memphis Gas Company is assembling a lease concentration from a point 12 miles southeast of Memphis to the Mississippi state line, into DeSoto County.

North of Somerville, Fayette County, Americrude Oil Company has assembled 12,000 acres and is reported prepared to drill a deep test within the next few months. This is on a geophysical and surface high where oil and gas showings were logged in a shallow well drilled some years ago by E. L. Noble of Okmulgee, Oklahoma.

In McNair County, just across from the Mississippi state line, the Stephens Petroleum Company of Oklahoma City is moving in a rig from Kansas for a deep test.

Kansas Hearing Set

Kansas State Corporation Commission has set September 28 at Wichita to consider market demands and fix the state and pool allowables for October.

☆ California

Three Los Angeles Basin Hot Spots Hold Interest

Interest of prospectors shifted from San Joaquin Valley; Standard of California due to bring in its first well from new Anderson sand at Cymric; shallow well in Contra Costa County flows 1 million cubic feet of gas and small amount of light oil on production test.

Los Angeles County: Center of interest in California, as far as wildcat projects are concerned, has shifted from the San Joaquin Valley to the Los Angeles Basin. Three hot spots in the Basin are holding attention. In the Gardena area, about a mile from the Rosecrans field and midway between Los Angeles and San Pedro, The Ohio Oil Company appears to have made an oil discovery, although the well—Gardena Community 1 in 24-3s-14w—swabbed wet and present efforts are directed toward locating the source of the water. Ohio is withholding information on the well but field

reports credit the production of some oil along with the water. Total depth is 10,594 feet.

Standard Oil Company of California's deep wildcat, Lewis-Community 1 in the Leffingwell area, midway between the Santa Fe Springs and West Coyote fields, is coring below 10,325 feet after setting 7-inch casing at 10,145 feet. Operator did not test for 7-inch water shutoff as expected.

A third center of interest in the Basin is the Bandini area, where three companies are prospecting, with leasing activity of the character usually found after a discovery has been made. Richfield Oil Corporation's U. P. Unit 1 in 9-2s-12w, has been tied up with a fishing job but should resume drilling soon at 8496 feet. C. G. Willis' Pansini 1 in Sect. 23 is drilling below 7350 feet about 2½ miles southeast. Chanslor-Canfield Midway Oil Company is about to spud in a test in Sect. 21 about 1½ miles south of the Richfield project.

Ventura County: Another deep wildcat of note in the southern part of the state is Standard of California's Elkins 1, in 6-3n-19w, Ventura Basin, which is drilling and spot coring just above 13,000 feet.

Kern County: Standard of California should shortly complete its first well in the recently discovered Anderson sand in the Cymric field. On a formation test of the interval 3366-3430 feet, Weston 34-26, in 26-29s-21e, flowed oil and gas with the tester open 12 minutes. Casing is being run, with bottom of the hole at 3430 feet. Standard's Weston 44-26, also in Sect. 26, has tested the interval 3517-3672 feet, recovering only thin gassy mud and salt water. Crew is cleaning out to retest. Independent Exploration Company has staked a well on a lease of the Oceanic Oil Company in the Cymric area, 22-29s-21e. The location is some distance from production and is considered strictly wildcat. Four other projects will spud soon in search of Anderson zone production.

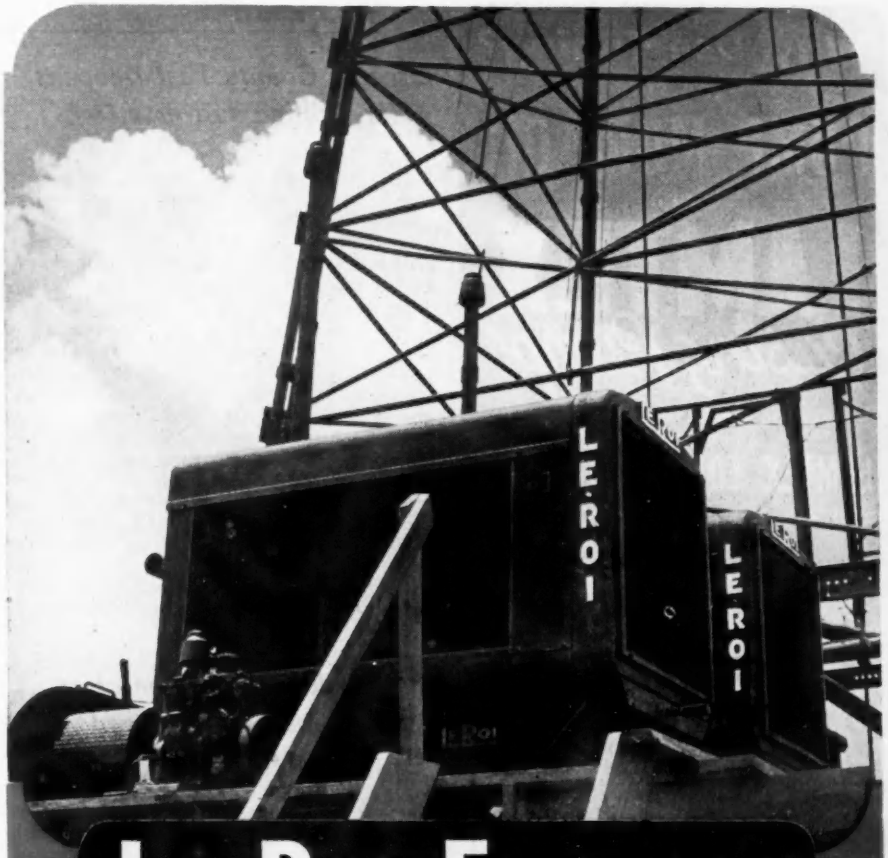
Two deep wildcats in Kern County continue to drill without favorable findings, although Bandini Petroleum's Bacon 1 in 27-28-20, Bacon Hills area, is credited with showings between 9430-9500 feet. Present bottom is 10,938 feet. Richfield's San Emidio wildcat, 1-A in 8-11n-21w, is drilling below 12,000 feet in shale.

Fresno County: Tide Water Associated Oil Company continues to drill in its Cantua Creek wildcat, S. P. 82-15 in 15-17s-15e, with bottom now below 12,490 feet. Several showings have been logged which have not been considered of sufficient importance to test.

The Superior Oil Company is completing Sample 81-25 in the Lanare field, 25-17s-18e. The well flowed at the rate of 180 barrels daily of 35.8-gravity oil on a production test.

Contra Costa County: Ardley Petroleum Company has made a production test of its shallow wildcat in the Martinez area, Almond 1 in 31-2n-2w. With bottom of the hole at 935 feet, 160 feet of 8-inch perforated liner was landed at 535 feet. The well flowed 1 million cubic feet of gas and a small amount of light oil. Liner has been pulled preparatory to deepening.

Sacramento County: Standard of California has completed Oulton Land 6 in the Rio Vista gas field. It made 9,129,000 cubic feet through ½-inch choke with tubing and casing pressures 1649 and 1627 pounds, respectively.



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☆ Michigan

Osceola County Test Deepens After Drilling Traverse Dry

Sun Oil Company's Kissinger 1, SE NE SW 4-18n-10w, Osceola county, a mile east of the North Lincoln discovery, logged Traverse at 2959 feet and drilled the section dry. The well will be carried to Dundee-Monroe, main producing body in the Reed City field.

Gratiot County: A. E. William's Cook 1, SW SE SW 19-9n-1w, rated a Traverse oil discovery 2 weeks ago, when put on the pump started to produce water in the Traverse pay at 2438 feet and is deepening to the Dundee.

Lease Auction: Lands Division of Department of Conservation leased 13,254 acres, all but 120 wildcat, for a bonus price of $8448 to average 63.7 cents an acre. High bid was for wildcat acreage, $7.03 per acre, paid by The Ohio Oil Company in the Mio area of Ogemaw and Oscoda counties where a big core drilling program has been under way for months.

Indiana Research Laboratory Is Being Built by Standard

Standard Oil Company of Indiana announces construction of a research laboratory in Hammond, Indiana, near the Whiting refinery. Work has been started and the first units will comprise the main administration building, general laboratories, and three pilot-plant buildings. A cafeteria will be included. Scheduled for subsequent construction are an engine laboratory, a greenhouse for insecticide work, additional pilot-plant buildings, and other research facilities.

In announcing the plans, Dr. Robert E. Wilson, stated that "The postwar world is certain to see greatly increased research activity. Jet planes and gas turbines will call for entirely new types of fuel. Many new products of all kinds will be made from petroleum and natural gas. These will include chemicals and plastics as well as new fuels and lubricants. The company or nation that fails to expand its research is likely to watch the procession of competitors pass it by. To meet the vigorous postwar competition, the only answer is more and increasingly efficient research."

Decision Handed Down in Minority Ownership Case

In the first case of its kind tried before the Oklahoma Corporation Commission and designed to settle disputes on minority ownerships in leases under provisions of a unitization law which was recently passed by the Oklahoma State Legislature, the commission granted an application by Denver Producing & Refining Company requiring that the Gulf Petroleum Company, controlled by Robert Rucker and others, put up its proportionate cost of the drilling of a well on a unit in the West Edmond pool. Denver owns 13/16 interest in the Meeker lease in SW 1-13n-4w, Oklahoma County, and controls ⅛ interest while the Gulf Petroleum control 1/16 interest. In its finding the commission said the respondent "should not be allowed to sit idly by and enjoy a free ride and await the outcome of the drilling of the well before obligating itself to pay any portion of the cost of development . . ." Gulf Petroleum accepted the commission's decision and had perfected a bond as directed by that body.

☆ Illinois Basin

Illinois Test Completed Natural in Hardinsburg

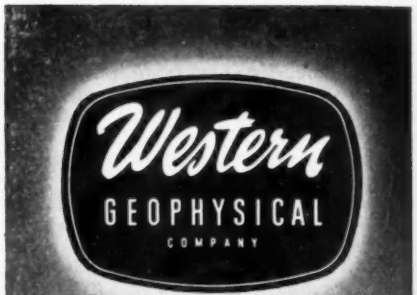
Test near Brownsville pool, Illinois, completed in Hardinsburg for 225 barrels daily; New Kelvin pool given new producing horizon; Parkersburg pool has new pay horizon; another producing zone added to Dixie pool, Kentucky; Daviess County, Indiana, field opener tested.

Illinois

The Pure Oil Company's Brown 1, NEC 6-1s-8e, approximately ¾-mile southwest of the Brownsville pool, White County, has been completed in the Hardinsburg sand for 225 barrels of oil per day on pump. The well, which had pay at 2664-80 feet was completed natural.

A mile west of the Brownsville pool, Pure and J. J. Lynn have completed Silliman 1, NW NW SE 36-5s-8e, for 131 barrels of oil daily on pump from Hardinsburg sand at 2632-40 feet, the latter figure total depth.

The New Kelvin pool was given a new producing horizon at S. A. Pearce's Boultinghouse 1-B, NE SE SW 6-4s-14w. During a 1-hour drill-stem test



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the well yielded 1400 feet of oil and no water from Cypress sand at 2998-2718 feet. Casing was set to Aux Vases sand, regular producing zone. The well is in the extreme south end of the pool.

Edwards County: The Parkersburg pool has a new pay horizon at R. B. Martin and Central Pipe Line Company's Gadeau 1, CN½ NW NE 6-1n-14w. First completed in May, 1942, for 1050 barrels daily from McClosky lime, the well has been reworked to produce from Cypress sand at 2846-61 feet an initial of 121 barrels per day.

Coles County: William Cartmell's Tewell 1, NE NE SE 32-12n-7e, attempted extension 2½ miles west of the south edge of the Mattoon pool, has been abandoned as dry at 2302 feet. The well ran extremely low.

Production in the pool has moved up to approximately 1200 barrels daily and Loudon Pipe Line Company, which has been trucking oil from the field, is preparing to build a loading rack adjacent to the Illinois Central Railroad, which runs through the heart of the state's oil fields and has wells along its right-of-way.

The Carter Oil Company, which has farmout acreage in the Mattoon pool now under production, plans a well in the area.

Kentucky

A new producing zone has been added to the Dixie pool at Sun Oil Company's Pritchett 2, 21-O-22, Henderson County, which found commercial pay at 1890-1917 feet in Tar Springs sand. Operators are preparing to test. Previous production in the pool was oil from Cypress sand and gas from Pennsylvania sand.

Indiana

R. B. Brown's McCracken 1, C S½ SW SE 16-2n-6w, Daviess County, which is opening a new oil field in an old gas pool, made 66 barrels of oil in 4 hours from Salem lime at 1305-07 feet and is still testing. The pool, North Glendale, originally produced gas from Cypress sand.

Posey County: Carter's Ashworth 1, NW SW NE 14-7s-14w, has added a new pay horizon to the Jeffries pool, which in the past produced only from the Tar Springs sand. The new pay is Cypress sand, which during a drill-stem test at 2440-50 feet showed oil and oil-cut mud with no water. Operators are coring. The well is ¼-mile north of the pool discovery.

☆Canada

Roxana Oils Begins Test In Alberta Foothills Belt

Roxana Oils Company, Ltd., Alberta independent backed by a $500,000-plus fund secured through New York interests, has commenced exploratory drilling at Keystone Valley in the Alberta Foothills Belt. Roxana 3K was spudded with cable tools September 6 in 1sd 7 31-27-6w5.

The test is on the indicated crest of an anticlinal structure about 40 miles north and west of the Turner Valley field. The structure is presumed to be along the same Madison Limestone ridge which yielded Turner Valley, and continues north and west at varying depths, reaching the surface at Marble Mountain, 100 miles north. Midway between Turner Valley and Keystone Valley is the Shell-Norman wildcat, which went to more than 12,000 feet on a low point of the presumed ridge, and found water in the Madison. (The Shell 4-24-J discovery well, completed at 9947 feet a few miles northeast of the Norman venture, proved a Madison ridge paralleling the Turner Valley-Marble Mountain ridge to the east.)

Calgary geologists Josephn S. Irwin, who reported on Keystone Valley for Roxana, estimates depth to the Madison limestone at 5900 feet. The company holds 24,087 acres blanketing the indicated structure. The block extends from the west half of Twp. 27 Rge. 6w5 to the west half of Twp. 29 Rge. 7w5, the south end being about 33 miles west and north of the city of Calgary.

Roxana's decision to drill with cable tools, unusual in modern deep drilling in Alberta, was made to facilitate careful exploration of every prospective oil and gas horizon above and in the Madison.

British-American Oil Company has added an estimated $8 million to its assets and extended its operations from the Atlantic to the Pacific through purchase of the business and physical assets of Union Oil Company of Canada, an oil marketer in British Columbia and Alberta since 1911, and a subsidiary of Union Oil Company of California. The Union assets purchased include 220 retail outlets in British Columbia and 77 in Alberta and a 179-acre refinery site on Lulu Island, on the Fraser River near the Pacific Coast.

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ANNOUNCEMENT

END USE CERTIFICATES:

End Use Certificates are no longer needed or required by us for any of our "Natasco" Products.

PRIORITIES:

Priorities have been removed from all "Natasco" items.

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We have discontinued Steel Drum Deposit Charges. Until we are able to obtain new steel containers in quantities we will continue to use "Stickers" on all drums that are returnable.

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Telephone 259
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REFINERY SUPPLY CO. of CALIF.
Telephone Jefferson 0922
Los Angeles, California

EXPLORATORY COMPLETIONS

ALABAMA WILDCATS

Clarke County—Failure: California's White City Plantation Co. 1, swc 6-7n-1e, Eutaw 2448 ft, abnd 4009 ft.

Conecuh County—Failure: Hunt's T. R. Miller Mill Co. 4, swc 13-4n-11e, abnd 2845 ft.

Sumter County—Failure: J. H. Gwin's Allison Lbr. Co. 1, c ne sw 36-19n-4w, Eutaw 1136 ft, Tuscaloosa 1536 ft, Massive 2360 ft, abnd 2616 ft.

ARKANSAS WILDCAT

Benton County — Failure: Vincent R. Trabucco's Chas. Henderson 1, c ne se 29-19n-31w, abnd 1200 ft.

CALIFORNIA WILDCATS

Kern County—Failure: Capital Co.'s Kloffenstein 1, 24-29s-28e, Kern Bluff area, Pyramid Hills sd 577 ft, Upper Vedder 5896 ft, Lower Vedder 6147 ft, abnd gray sd 6163 ft.

Merced County — Failure: Tide Water's Soares 31-36, 36-8s-8e, Gustine area, abnd 5509 ft.

San Luis Obispo County—Failure: Richfield Oil Corp.-Sun's Gonyer Unit 1, 34-12n-25w, Temblor Hills area, abnd 6500 ft.

ILLINOIS WILDCATS

Fayette County—Failure: Fred J. Pfunder et al's Meyers Est. 1, (OWDD) ne ne sw 14-7n-1w, otd 1022 ft, abnd 1593 ft.

Hamilton County—Oil Discovery: Carter's Provident Mutual Life 1-A, nw nw se 14-4s-7e, Aux Vases 3312-18 ft, pump 126 bbls, td 3327 ft.

Jefferson County—Failure: T. Blake Kirickson's Schneider 1, sw sw se 23-1s-1e, abnd 2391 ft.

Marion County—Failure: Schlafly & Slivka's Young 1, sw se sw 6-2n-2e, abnd 1937 ft.

Richland County—Failure: Sam Malls' Funk 1, ne se ne 32-4n-10w, abnd 1185 ft.

Wabash County—Failures: C. E. Skiles et al's Berninger 1, ne sw nw 18-1n-13w, abnd 2900 ft.

Wilson Drlg. Corp.'s Crowell Hrs. 1, se se nw 24-1n-13w, abnd 2522 ft.

INDIANA WILDCATS

Gibson County—Failure: C. E. Skiles & McBride's Dunnigan 1, nw ne se 15-2s-12w, abnd 2510 ft.

Joseph County — Failure: S. L. Godfrey's Gadbury 1, nw nw nw 14-38n-3e, abnd 815 ft.

Posey County — Failure: Cherry & Kidd's Gray Est. 2, sw se sw 36-7s-15w, abnd 2894 ft.

Sullivan County—Failure: Roy Myers' Hayes 1, ne ne ne 26-8n-11w, abnd 2850 ft.

KANSAS WILDCATS

Barton County—Failure: W. L. Hartman's Gaunt 1, ne ne sw 3-20s-13w, Lans 3176 ft, Cong 3438 ft, Arb 3445 ft, abnd 3476 ft.

Butler County—Failure: Zeigler et al's Teeter 1, ne ne se 36-25s-5e, Lans 1773 ft, Miss 2708 ft, abnd 2750 ft.

Marion County—Failure: R. B. Hurlbutt et al's Morrison 1, c s½ nw se 12-18s-1w, Miss 2826 ft, abnd 2828 ft.

Rooks County — Failure: Derby Oil Co.'s Brown 1, c s½ ne 20-8s-16w, Lans 2994 ft, Cong 3342 ft, Arb 3373 ft, abnd 3393 ft.

Sheridan County — Oil Discovery: Continental's Hoxie State Bk. 1, nec 32-8s-26w, Lans perf 3758-73, 3627-62 ft, swab 240 bbls, td 4253 ft.

Wallace County — Failure: Champlin Ref. Co.'s Sweisgood 1, se sw ne 11-13s-42w, Tarkio 3972 ft, Topeka 4123 ft, Lans 4433 ft, Arb 5490 ft, abnd 5502 ft.

KENTUCKY WILDCATS

Daviess County—Failure: Miller & Shiarella's Hayden 1, 12-N-27, abnd 2276 ft.

Todd County—Failure: Hobson & Putnam's Glenn 2, 16-G-28, abnd 500 ft.

Todd County — Oil Discovery: Hobson & Putnam's Stinson 1, 13-D-29, Dev 1389-92 ft, pump 4 bbls, td 1410 ft.

NORTH LOUISIANA WILDCATS

DeSoto Parish—Failure: G. H. Vaughn, Jr.'s McGrew 1, c sw sw 34-16n-14w, Massive anhy 4665-4913 ft, base Rodessa 5197 ft, Pettit 5819 ft, Travis Peak 6175 ft, Cotton Valley 8590 ft, "D" sd 8945-60 ft, Bodcaw 9120-70 ft, tight sd gas odor 8960-65 ft, abnd 9200 ft.

Richland Parish—Failure: H. W. Todd et al's Greer Estate 1, ne sw 13-16n-7e, chalk 2808 ft, abnd 3399 ft.

MICHIGAN WILDCATS

Isabella County—Failure: Sun's Eddy 1, c nw 2-15n-6w, abnd 1728 ft.

Kalamazoo County—Failure: Homer Fulton's From 1, sw sw se 18-1s-12w, abnd 1113 ft.

Kent County — Failures: Smith Pet. Co.'s Sherk 1, c se se 21-5n-10w, Trenton 4550 ft, abnd 5200 ft.

James L. McGerry's Corrigan 1, sw sw sw 22-8n-9w, abnu 2930 ft.

Lapeer County—Failure: Clarence Wilcox's Sohn 1, nw nw nw 29-9n-12e, abnd 2501 ft.

Mecosta County—Failures: Cities Service's Kotke 1, se ne se 23-15n-9w, abnd 1732 ft.

Cities Service's Blum 1, se ne sw 6-16n-10w, Dundee 3568 ft, abnd 3740 ft.

Gulf's Gale 1, nw ne ne 3-14n-8w, Sylvania 4687 ft, abnd 4823 ft.

Monroe County—Failure: J. W. Struman's Chapman 1, ne ne nw 29-5s-10e, Trenton 2065 ft, abnd 3777 ft.

Montcalm County—Failure: Ohio's Myers 1, se sw se 21-12n-6w, Dundee 3507 ft, abnd 3622 ft.

MISSISSIPPI WILDCATS

Scott County—Failure: Carter's U.S.A.-Clifton 1, sec 6-7n-7e, Eutaw 5060 ft, Tuscaloosa 5622 ft, abnd 6624 ft.

Stone County — Failure: Superior's Wilbe Lbr. Co. 1, se se 20-3s-10w, abnd 8805 ft.

Yazoo County—Failure: Skelly's A. Bridgeforth 1, sec 17-12n-2e, Eutaw 5059 ft, abnd 6719 ft.

MISSOURI WILDCAT

Atchison County—Failure: Claude McQueen's Meyers 1, ne ne sw 30-65n-41w, Lans 635 ft, base KC 915 ft, abnd 1500 ft.

NEW MEXICO WILDCATS

Lea County—Failures: Phillips' State-Lea-Mex 4, c sw sw 17-17s-33e, deepest in state, elev 4214 ft, anhy 1340 ft, Queen sd 3430 ft, Grayburg 3720 ft, San Andres 4430 ft, base Permian (est.) 9450 ft, abnd 13,998 ft in shale.

Vickers Pet. Co.'s State-Shell 1, c nw ne 17-21s-31e, elev 3751 ft, anhy 1852 ft, salt

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ESTABLISHED GEOLOGIST with broad experience in acquiring early royalty, desires to contact investors interested in scientifically selected royalties in best major company geophysical prospects. References exchanged. Address: Box 15, c/o The Oil Weekly, Houston, Texas.

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■ Wanted by a consulting geophysical organization: Petroleum Engineers with Hayward Mud-logging experience or its equivalent. Immediate openings in Venezuela. Excellent opportunity for advancement to managerial positions throughout the world. Address: Box 45, c/o The Oil Weekly, Houston, Texas.

■ Engineer-Surveyor (Foreign) to make surveys on concessions from government to establish boundaries, lot selections, right of way, etc. Must speak fluent Spanish and be capable of directing field party composed of natives. Major oil company. Apply P. O Box 2819, Dallas, Texas

■ WANTED: Man qualified to prepare maps and supervise the making of maps that are generally used in the Land Department of an Oil Company. Must be able to secure information from county records and other sources for preparation of maps. Should be experienced in making maps used in the Production and Geological Departments. If interested Address: Box 11, c/o The Oil Weekly, Houston, Texas.

■ Experienced seismograph Party Chiefs, Computers, Observers and Drillers. Good opportunity for advancement in expanding geophysical company and eventually for foreign service if desired. Address: Box 10, c/o The Oil Weekly, Houston, Texas.

■ GEOLOGICAL MAP DRAFTSMEN. Several openings for men with proper qualifications. Must be excellent freehand letterers. Geological knowledge unnecessary. Submit details of education, experience, and samples of freehand lettering. Reply Geological Department, P. O. Box 1650, Tulsa 2, Oklahoma.

■ Large independent producing company has openings in seismograph department for Party Chief, Observer, Shooter, Wireman, Geological Draftsman, Electronic-Shopman. Give full particulars, education, progressive experience, age, family status, condition of health, and salary desired. Communications confidential. Members of our own organization know of this advertisement. Address: Box 23, c/o The Oil Weekly, Houston, Texas.

SITUATIONS WANTED

■ HOUSING MANAGER or Supervisor experienced in handling operation and maintenance wants position handling housing requirements. Oil Company experience abroad. Excellent references. Now employed but available to go anywhere. Address: Box 17, c/o The Oil Weekly, Houston, Texas.

■ Honorably discharged Air Corps Captain, age 34, former attorney and independent producer, experienced land, title, and office administration, available immediately for employment with major company or aggressive independent. Address: Box 18, c/o The Oil Weekly, Houston, Texas.

■ Seismic Party Chief, with over ten years experience in geophysics, wishes to associate with small company in the field of geophysics, geology, and engineering. Permanent location (preferably in or near Gulf Coast Area) a prerequisite. Require $6000 minimum salary and an assurance of permanency of position. Address: Box 24, c/o The Oil Weekly, Houston, Texas.

1987-3718 ft. Yates 3922 ft. Yates frost 3945 ft, abnd 4116 ft.

OKLAHOMA WILDCATS

Atoka County—Failure: Ed Kubat's Gudget 1, se ne nw 15-3s-9e, abnd 2715 ft.

Comanche County—Failures: Ray Stephens, Inc.'s Goering 1, ne ne ne 23-3n-10w, abnd 2013 ft.

Johnson Bros.' Bazneska 1-A, se se nw 20-1s-11w, abnd 2606 ft.

Logan County—Oil Discovery: Texas Co.'s Arundel 1, se ne sw 2-15n-1w, Btvs 5236-43 ft, flow 114 bbls 40-gr oil, 20/64-in, td 5922 ft.

Logan County—Failure: C. L. Carlock's Perdue 1, (OWDD) se se sw 24-19n-4w, otd 2880 ft, abnd 2998 ft.

Okfuskee County — Failure: Manahan Oil Co.'s Gragg 1, sw sw ne 13-11n-7e, Cromwell 3635-37 ft, abnd 3637 ft.

Pontotoc County—Failure: Allied Oil's Miller 1, se sw sw 28-3n-8e, abnd 3772 ft.

Pottawatomie County—Oil Discovery: Chas. Jenkins et al's Goodnight 1, se sw se 33-6n-3e, Lay 2859-69 ft, pump 25 bbls 38-gr oil, td 2869 ft.

WEST TEXAS WILDCATS

Irion County—Failure: Skelly's Sugg 1, c se se H&TC Ry, 45, blk 1, elev 2485 ft, anhy 670 ft, li 1090 ft, San Andres 1340 ft, detrital 7920 ft, Ellenburger 7932 ft, abnd 8700 ft.

Martin County—Failure: American Republics Corp.'s Boehmke 1, ne ne ne T&P Ry. 34, blk 35, T-1-N, elev 2573 ft, anhy 1300 ft, salt

POSITIONS WANTED BY SERVICE MEN

■ In the interest of both employers and employes, **The Oil Weekly,** through its Overseas Pony Edition, which is sent free to 6500 former oil men now in the services, has offered to run advertisements from those who will be seeking work once they are discharged. In some cases **The Oil Weekly** has a few more details but, generally speaking, direct correspondence would be advisable. Unless otherwise indicated it may be some time before the person named in the advertisement is available.

■ Young man, 23, high school enducation, inexperienced in oil industry interested in any phase of work with opportunity for advancement. Orville Staack, U.S.S. Steady (AM 118), c/o FPO San Francisco, Calif.

■ College man, married, 32, desires postwar sales or clerical position in oil, supply or related industries; 8 years in sales and accounting for leading oilfield and industrial supply companies. Probably available March 1, 1946. Robert M. Smith, MaM2/c, 121 N.C. Batt., c/o FPO San Francisco, Calif.

■ Petroleum Engineer, B.S. in Petroleum Engineering, Texas A&M, 1938; 3 years experience in drilling and production problems, shallow and deep; 28 years old, married; available about November 1. Capt. William C. Best, 621½ Robinson Place, Shreveport, Louisiana.

■ Young man, 21, navy experience in general repair, hydraulics, and evaporator overhauling, interested in machine maintenance and repair outside the U. S. Robert Paul Matthews, MM2/c, 3716 East Robson St., Indianapolis, Indiana.

■ Geologist, B.S. Durham University, England, interested in geological reconnaissance, detailed mapping, Middle East or British India. Experience in regional studies, interpretation aerial maps Northern Rhodesia, New Guinea, India, Australia, 1935-42; also core drilling. Lt. John W. Pallister, RANVR, Allied Geographical Section, CHQ, AFPAC, APO 500, c/o Postmaster, San Francisco, Calif.

■ B.S. Geology, University of Texas, 1942, age 27, married, interested in geological work with oil company. References, Capt. Marvin E. Hairgrove, U.S.M.C. Corps Artillery, 5th Amphibious Corps, c/o FPO San Francisco, Calif.

■ Seabee, 21, single, graduate welding school, desires work in U. S. or abroad in pipeline or refinery or oil company. Available upon U.S.N.R. discharge. Robt. E. Musselman, 801 Lane Street, Clay Center, Kansas.

ADVERTISING RATES

TRADING POST SECTION

Regular classified advertisements for this special section, set in type this size without border, take flat-rate of 7 cents per word for the first insertion and 5 cents per word for each subsequent insertion of same copy. Display advertisements for this section, set in suitably larger type with ruled border, are $5.00 per inch for the first insertion and $4.00 per inch for subsequent insertions. Remittance must accompany copy which should be sent to:

Trading Post Section, The Oil Weekly
P. O. Box 2608 Houston 1, Texas

1400 ft, Yates 2020 ft, 1st li 3288 ft, San Andres 3520 ft, San Angelo 4420 ft, Clear Fork 5390 ft, abnd 7003 ft.

Pecos County — Failures: Lion Oil Co.'s Eaton 1, 1980, snl 4420 ewl H&GN-T.I.&M. sur 542, blk 13, elev 3057 ft, anhy 1450 ft, Rustler 1540 ft, abnd 3356 ft.

R. M. Payne et al's McClain 1, c w¼ of n½ H&TC Ry. 7, blk 2, elev 2363 ft, salt 1150 ft, Yates 1090 ft, San Andres 2296-2830 ft, Clear Fork 3180 ft, Tubb 3555-3655 ft, base Permian 4955 ft, Simpson 5050 ft, Waddell 5060 ft, Ellenburger 5195 ft, abnd 5322 ft.

Reeves County — Failure: Argo Oil Corp.'s Roberts 1, c nw se H&GN Ry. 294, blk 13, elev 2880 ft, anhy 1130 ft, Rustler 1290 ft, Delaware li 5147 ft, Delaware sd 5200 ft, abnd 5282 ft.

WEST TEXAS OUTPOSTS

Andrews County—Fullerton-Devonian Failure: Frankel Bros.' University 1-I, c nw nw sec 32, blk 13, 1 mi s prod, elev 3288 ft, anhy 1760 ft, Yates 2930 ft, San Andres 4470 ft, Glorietta 5660 ft, San Angelo 5700 ft, Tubb 6650 ft, Wolf Camp 7680 ft, Mississippian 8740 ft, abnd 8777 ft.

Pecos County — Ft. Stockton Extension: Texas Co.'s W. A. Martin 1, c sw ne T.&St.L. Ry. 14, blk 146, 1-1/16 mi se outpost, elev 2934 ft, flow 52 bbls 29.6-gr, 7/64-in, gor 1817/1, shot 15 qts nitro 2945-55 ft, Yates sd 2873-2955 ft.

WEST CENTRAL TEXAS WILDCAT

Jones County—Failure: Eltex, Ltd.'s, Wooten 1, ne ne sw sec 3, Blind Asylum Lands, elev 1699 ft, abnd 3546 ft.

SOUTHWEST TEXAS WILDCAT

Duval County—Failure: Bennett Bros. Drlg. Co.'s Jas. F. Welder 1, 1808.8 fr sl 2324 fr wl sur 213 330 fr s&el n½ sw¼ sur 213, 720-ac lse, Cole 1882 ft, Govt. Wells 2512 ft, Loma Novia 2550 ft, Mirando 2700 ft, abnd 2757 ft.

UPPER TEXAS COAST WILDCATS

Colorado County—Oil Discovery: Skelly-Warren Pet. Corp.'s R. Hamel 1, 466 fr n&wl 203-ac lse, R. Dowdy sur, perf 72 shots 9052-69 ft in Wilcox, flow 194.63 bbls 46.3-gr, 3/16-in, gor 6878/1, td 9706 ft.

Harris County—Failure: A. T. McDannald-Jack W. Frazier's B. F. Louis 1, 466 fr wl 69.34-ac lse and N. B. Waters sur, 495 fr sl lse, Alameda area, abnd 6020 ft.

Matagorda County—Failure: Humble's J. J. LeTulle 1, 1201 fr swl 2066 fr sel 1231 fr nel 5366-ac lse on 410.66-ac tr, I&GN sur, Lake Austin area, abnd in shale 7310 ft.

Tyler County—Failure: General Crude's G. C. Mettauer 1, start nwc 464-ac lse at river go 1520 s 660 e at ra, G&BN sur, abnd 3515 ft.

UPPER TEXAS COAST NEW PAY TEST

Brazoria County — Blue Lake Discovery: Glenn H. McCarthy's T. J. McMillan Est. 1, 660 n of sl 111-ac lse, 1000 se of s end of Little Hog Lake, pay 8996 ft, perf 64 shots 9000-08 ft, flow 238.35 bbls 30.4-gr, 9/64-in, gor 450/1, td 9044 ft.

EAST TEXAS WILDCATS

Navarro County—Failures: J. B. Daniel et al's Bounds 1, 330 out sec of 541.4-ac tr, Martin Latham sur, elev 371 ft, Woodbine sand 3208-14 ft, abnd 3222 ft.

Tex Harvey Oil Co.'s Edens 1, 2050 fr sel 5400 fr swl M. Shires sur, Austin chalk 2258-2743 ft, Woodbine 3176 ft, abnd 3244 ft.

NORTH TEXAS WILDCATS

Archer County—Oil Discoveries: Manning-Brown's A. P. Nichols 1, 330 out nec ANTCL sect 50, 2½ mi ne Hull-Silk fld, elev 1028 ft, KMA li 4215 ft, Bend 5140 ft, Ellenburger 5474 ft, flow 170 bbls 44.6-gr oil, 16% wtr, gor 250/1, natural, 10-hr gauge 12/64-in, Ellenburger perf 5486-5506 ft, td 5543 ft.

Robertson Dr. Co.'s Richardson 1, 1320 snl 330 wel blk 14, J. Scott sur A-374, elev 1173 ft, Gunsight 1202 ft, Home Creek 1833 ft, Palo Pinto 2925 ft, Bend 4708 ft, Ellenburger 5170 ft, flow 1688 bbls 40.5-gr, gor 300/1, natural, via 12/64-in, Bend perf 4702-10 ft, td 5222 ft.

Clay County—Oil Discovery: W. H. Hammon et al's Bryans 1, 660 out nec of s 426.9-ac tr, Mary F. E. Simms sur A-972, 1 mi e by s Dean, elev 952 ft, KMA li 4487 ft, Bend 5594 ft, Simpson 6180 ft, Ellenburger 6428 ft, pump 19 bbls 41-gr, shot 180 qts nitro 5862-92 ft, td 6502 ft, pb 5900 ft.

Wichita County—Failures: Reno Oil Co.'s Dale 1, 5900 nsl 150 ewl of Mary A. Bush sur A-24, abnd 2005 ft.

D. J. White et al's Herron 1, 593 ewl 891 snl of e 160-ac of W. H. Taylor sur A-764, abnd 1751 ft.

Young County — Oil Discovery: Kerlyn Oil Co.-Phillips' J. W. Bryan 1, 330 snl 1464 ewl TE&L Co. sect 1902, 3 mi n by e Jean, elev 1233 ft, Bend 4373 ft, Mississippi 5227 ft, Ellenburger 5415 ft, flow 418 bbls 43-gr oil, 1% wtr, gor 710/1, 20/64-in, 500 gals acid Bend perf 4373-81 ft, td 5576 ft, pb 4623 ft.

WILDCAT STARTS

CALIFORNIA

Los Angeles County: Shell's Dominguez Estate 1, 2-4s-13w, Dominguez area, lcn.

Kern County: Independent Exploration Co.-Universal Consol. Oil Co.'s Fee 2, 36-27s-28e, Round Mtn. area, rur.

Independent Exploration Co.'s Oceanic 1, 22-29s-21e, Cymric area, lcn.

Fresno County: Standard of Calif.'s Ferguson 54, 6-22s-16e, Jacalitos area, rur.

Tulare County: Trico O&G Co.'s Atwell Island Community 1, 7-24s-23e, Trico area, rig.

Kings County: British American's Avenal 86-31, 31-23s-17e, McClure area, dr.

ILLINOIS

Clay County: J. J. Lynn's Brissendon 1, ne nw nw 22-3n-8e, lcn.

Jefferson County: Aetna Oil Co.'s Spangler 1, ne ne se 12-2s-1e, lcn.

Marion County: Angle-Redwine's James 1, ne nw nw 22-2n-3e, lcn.

Skelly's Jacobs 1, ne nw nw 31-3n-3e, lcn.

Richland County: Pure's Howard 1-A, nw nw sw 13-2n-9e, lcn.

White County: Nat'l Assoc. Pet.'s Dalby 1, se sw ne 6-6s-8e, lcn.

KANSAS

Butler County: Zephyr Drlg. Co.'s Stone 1, se se ne 23-24s-7e, lcn.

Dickinson County: Nelson Drlg. Co.'s White 1, sw nw nw 7-15s-1e, dr 2365 ft.

Edwards County: Cities Service's Minet Est. 1, se se ne 15-25s-17w, rur.

Phillips County: Chieftan Oil Co.'s McKinley 1, sw sw nw 13-5n-18w, lcn.

Rooks County: Phil-Han et al's Zeigler 1, nw nw sw 9-9s-19w, mim.

Russell County: Skelly's Schulte 1, ne sw nw 20-13s-15w, rur.

Saline County: Ed Adair's Walden 1, swc 27-13s-2w, lcn.

KENTUCKY

Henderson County: Ashland's Handley 1, 16-O-24, lcn.

A. Teller et al's Fuqua 1, 24-O-24, lcn.

Hopkins County: Ashland's Qualls Bros. 1, 15-I-26, lcn.

Ohio County: Ashland's Fulkerson 1, 20-I-30, lcn.

J. B. Pierce et al's Baird 1, 1-L-31, lcn.

Ashland's Webb 1, 5-I-32, lcn.

Union County: Ashland's Buckman 1-B, 18-P-20, lcn.

NORTH LOUISIANA

De Soto Parish: E. F. Neely-W. C. Feazel's LaFitte Company 1, c nw se 24-14n-12w, 3000-ft test.

West Carroll Parish: California Co.'s J. E. Hill 1, 2-19n-9e, 7500-ft test.

SOUTH LOUISIANA

Jeff Davis Parish: Sohio's Claude Fontenot 1, c ne¼ sw¼ 15-10s-6w, Iowa Junction area, 8000-ft test.

MICHIGAN

Hillsdale County: C. A. Perry's Wright 1, se nw nw 9-5s-4w, lcn.

Kent County: Oil Producers' Brewer 1, ne se se 8-5n-11w, dr.

Newaygo County: Mich. Consol.'s Stockwell 1, c nw 30-16n-11w, lcn.

Ottawa County: J. W. Lang Co.'s Groters 1, nw nw se 35-6n-16w, lcn.

MISSISSIPPI

Adams County: Roeser & Pendleton's Baker-Maier 1, 34-6n-2w, lcn.

Issaquena County: Hunt's M. B. Nicholdson 1, nwc 27-13n-9w, lcn.

Stone County: Geo. Vasen et al's Tung Corp. of America 1, c ne ne 9-2s-11w, lcn.

Washington County: Kingwood Oil Co.'s W. H. Rucker 1, nec 35-15n-8w, prep to spud.

NEBRASKA

Dawes County: Amerada's Ostermeyer 1, sw ne sw 10-32n-52w, mirt.

NEW MEXICO

DeBaca County: Firesafe Builders Products Corp.'s State 1, c ne ne 8-3s-26e, dr 1170 ft.

OKLAHOMA

Beckham County: Pure's Hudgins 1, ne nw nw 29-9n-26w, dk.

Canadian County: L. B. Jackson's Fee 1, sw se se 30-14n-5w, rig.

Johnston County: Mid-Continent's Bates 1, ne sw 28-4s-6e, lcn.

Lincoln County: Fred Morgan's Cull 1, se sw se 17-4n-4e, dr.

Noble County: Acé Gutowsky's Kerk 1, ne nw 22-21n-2e, bldg rig.

Deep Rock Oil Corp.'s Arrandell 1, sw nw sw 12-23n-1e, rur.

Okfuskee County: Wood Oil Co.'s Smith 1, se sw ne 23-12n-10e, lcn.

Seminole County: Sohio's Varnum 1, ne ne ne 36-9n-7e, lcn.

Stephens County: Jackson et al's Pruitt 1, sw se sw 32-2s-7w, dr in shale.

WEST CENTRAL TEXAS

Brown County: W. L. Cox et al's W. P. Vanderveer 1, 150 out nwc E.T. Ry. sect 13, 1000-ft cable test.

Shackelford County: Roeser-Pendleton-Continental's Cook 1-A-54, 1766 ewl 1179 nsl E.T. Ry. sect 54, 1400-ft cable test.

James Blair Baker et al's Mrs. Dell Newell 1, 3810 snl 150 ewl T&P Ry. 6, blk 12, 1900-ft cable test.

Stephens County: W. R. Skeen et al's C. R. Compton 1, 467 out of sec sect 2254, TE&L Co. sur, 4500-ft cable test.

Taylor County: Carl Hovgard et al's Hamp Campbell 1, sw sw ne T&P Ry. 6, blk 18, 1 mi ne Blair, 3200-ft cable test.

SOUTH CENTRAL TEXAS

Bastrop County: Continental's Frank Rundus 1, 990 fr n&wl 220-ac lse, Wm. Medford Lge, lcn.

SOUTHWEST TEXAS

Starr County: Billstrom & Armstrong's Mary M. Edgerton 1, 490 fr wl 330 fr sl blk 11 and sh 66 Porc 80, 280-ac lse, 1300-ft test.

LOWER TEXAS COAST

Bee County: Ashland O&R Co.'s Mary Zowarka et al 1, 467 fr nw&swl 40-ac lse, Bee CSL sur 16, lcn.

Goliad County: Ginther, Warren & Ginthern's Carrie G. Wood et al 3, 1980 se of sel Rowan & Nichols lse 1980 sw of swl Union Prod. Co. lse, 1187-ac lse, Geo. Villa sur, 5300-ft test.

Seaboard of Dela.'s E. N. Hysaw 2, 1600 fr nel 1069-ac lse, 933 se Well 1-A, Don Erasmo Seguin sur, 4100-ft test.

Karnes County: Phillips' W. P. Belknap, Jr. 2, 1700 fr nwl 4110 fr nel 399-ac lse, Chas. Haynes sur, lcn.

Lavaca County: G. W. Strake-Tide Water's L. C. Wolfsdorff 1, 467 fr s&wl 223.5-ac lse, Miguel Muldoon sur 29, Sublime area, 9500-ft test.

Live Oak County: Glenn H. McCarthy's C. L. Cartwright 1, 1400 fr m/wly/nl 330 fr m/wly/wl 260-ac lse, J. M. Dickens sur, woc 1650 ft.

Refugio County: P. R. Rutherford's L. Zarsky 1, 467 fr s&wl Esteban Lopex sect 14, 160-ac lse, lcn.

San Patricio County: Southern Minerals Corp.'s A. J. Wheeler 1, 467 fr nl T. T. Williamson sur 33, 467 fr wl 652-ac lse, 2850 fr wl 2430 fr el sur, 7500-ft test.

UPPER TEXAS COAST

Chambers County: Sterling O&R Corp.'s J. D. Eula Cline 1, 2350 fr nl 966 fr el 966.05-ac lse and blk 2-A, J. Whitcomb Lge, 10,000-ft test.

EAST TEXAS BORDER COUNTIES

Marion County: Rogers Lacy's Wade Scott et al 1, 3700 e 1700 n of nec Levi McLaughlin sur, in Alexander Johnson sur, Travis Peak test.

EAST TEXAS

Freestone County: Blackwell O&G Co.'s Jewell Wasson 1, 835 wel 521 nsl 159.63-ac lse, Sarah McNulty sur, 3300-ft Woodbine test.

Hopkins County: Delta Dr. Co. et al's L. H. Livingston 1, 537 out of n 40-ac of 83.49-ac tr, or 3350 snl 675 wel Nacogdoches University sur 10, 5 mi w by s Pickton fld, rur for Travis Peak test.

Navarro County: Cathrina & Smith's F. M. Copeland 1, 780 ewl 1320 snl of n 150-ac of 271-ac tr, or 1320 fr nwl 5150 fr swl Jeremiah Latham sur, mim for Woodbine test.

Rains County: Sohio's Delta F. Butler 1, 330 out of sec 81-ac tr and E. Gideon sur, 7 mi ne Emory, mim for 8500-ft Travis Peak test.

NORTH TEXAS

Archer County: Bridwell Oil Co.'s Langford Inv. Co.-Texaco 1, 2900 ewl 1530 nsl blk 127, J. W. Harris sbdn, 1500-ft rotary test.

Benson Bros. et al's Allie Turbeville 1, 1000 nsl 330 ewl blk 49, J. W. Harris sbdn, 1800-ft rotary test.

Cooke County: Nu-Enamel Oil Operating Co.'s J. M. Maupin 1, 330 out sec 92-ac tr, R. Alexander sur A-13, 1 mi n Gainesville, 4000-ft Ellenburger test.

WESTERN CANADA

Alberta Foothills—Keystone Valley: Roxana Oils Co.'s No. 3K, lsd 7 31-27-6w5th, dr.

SQUEAKS from the BULL WHEEL

Good Hunting

A visitor to West Point noticed that the names engraved on a battle monument were those of men in the Union Army, killed in action during the Civil War.

"What is this?" he inquired of a passing cadet.

"A tribute to the marksmanship of the Confederacy, suh!"

CORE DRILLING SERVICE
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90-UL ECOLITE
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TESTED AND RECOMMENDED BY UNDERWRITERS' LABORATORIES
- Sealed beam construction.
- Throws bright beam 1500 feet.
- Large handle and pivoting feature gives you light where you need it and both hands free for work. Now at jobber and supply stores.

ECONOMY ELECTRIC LANTERN CO.
3100 W. Cherry St. Milwaukee, Wis.

This Curious World

The difference between a model woman and a woman model is that the former is a bare possibility and the latter is a naked fact.

Many a girl who puts up a swell front in society is flat-busted at home.

When a girl admits she has had a checkered career, it's your move.

A man expects an apology if you're in the wrong; a woman expects one if you're in the right.

An executive is a man who can hand back a letter for a third retyping to a red-headed stenographer—and live!

Wealth or Wings

"Is there any hope for my husband, Doctor?"

"Depends on what you're hoping for."

We See By the Papers

"Lady wishes position as housekeeper for widower; no objection to having one child."

"Lady with license will drive your car. Don't mind long strips."

"Grandma Subbins did not have one child after another, as was reported yesterday. What she had was one chill after another."

"Wanted—Middle-aged white lady with husband for landlady."

Cause of Divorce

"I'm sick of marriage. Tom hasn't kissed me since I came back from my honeymoon."

"Why not divorce him?"

"But I'm not married to Tom!"

Mustn't Cool Off

"I thought you were a woman hater. How is it I saw you with one last night?"

"Oh, I just hang around 'em to keep myself mad."

Poet's Nook

The gal worthwhile
Is the gal who can smile
When the synthetic tape breaks in her panties.

Strange Sport

Explorer: "We were surrounded by natives. They uttered savage cries, danced madly and beat the ground with their clubs."

Bored Listener: "Golfers, probably."

Better Reading

"I'm thinking of writing a book about the private life of a general."

"The general life of a private would sell better."

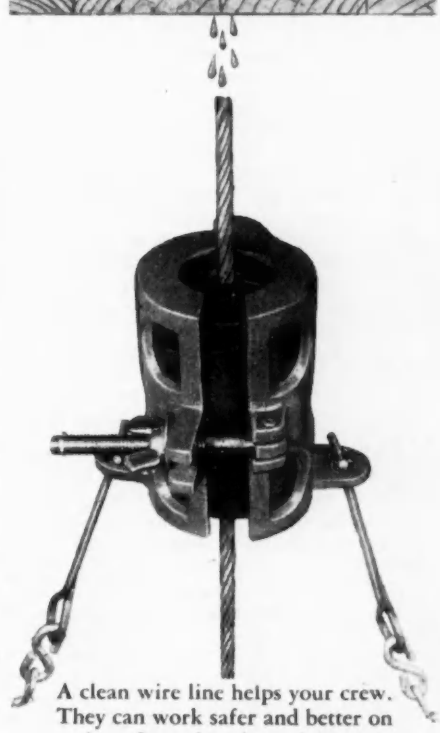
Her Error

"Little boy, does your mother know you smoke?"

"Sure, lady, but does your husband know you speak to strange men on the street?"

"Best Bet Yet"

CLEAN LINES



A clean wire line helps your crew. They can work safer and better on a clean floor, free from drippings. With a Patterson-Ballagh Wire Line Wiper the line is stripped completely of mud and oil. A compact steel housing contains a spiral rubber which is inexpensive and easily replaced. The rubber wipes the line as it comes out of the hole. Sparkproof. Use one on every well. Now made of PBX, Patterson-Ballagh's new synthetic rubber.

See Composite Catalog

Patterson-Ballagh WIRE LINE WIPERS
Los Angeles 1 Houston 10 New York 6

MEN IN THE INDUSTRY NEWS

Dr. Gerhard Herzog has opened offices at 2211 Maroneal Street, Houston, as consultant in physics and research. He has been employed by The Texas Company since 1940, conducting research in that company's geophysical laboratory. Recently he was awarded a certificate of merit by the National Defense Research Council for research done in connection with the war effort. He received his Doctors degree in physics at the Institute of Technology, in Switzerland, and was professor of physics at that institution until 1938, when he came to this country. For a short time thereafter he was on the staff of the physics department at the University of Chicago.

W. A. Davis, formerly district sales manager for Baker Oil Tools, Inc., Houston, recently resigned to become sales manager for F. L. LeBus Company and LeBus Rotary Tool Works, Longview, Texas.

Victor R. Gallagher has resigned as petroleum engineer for the Superior Oil Company at Crossville, Illinois, to open an office as consultant specializing in the Illinois Basin area.

Dr. E. H. Sellards retired recently as director of the Bureau of Economic Geology, University of Texas. He will continue as director of the Texas Memorial Museum and will be director emeritus of the bureau. Geologists of Dallas adopted a resolution as a tribute to Dr. Sellards for his "protracted and unselfish efforts in advancing the science of geology and assisting practicing and academic geologists by contributing a fund of technical information that otherwise would not have been available."

Dr. J. T. Lonsdale will succeed Sellards as director of the bureau. He formerly was director of the department of geology at Texas A. & M. College and at Iowa State College. From 1925 to 1928 he was associated with the Bureau of Economic Geology at the University of Texas.

Lieut. Col. M. T. Halbouty, Houston oil man, has been released from active duty and has returned to Houston to resume his consulting practice in geology and petroleum engineering. At the time of his release, Colonel Halbouty was serving as chief of the petroleum production section, planning division, in the Army-Navy petroleum board. A graduate of Texas A. & M. College, Colonel Halbouty received his commission as a second lieutenant in the army reserves upon graduating in 1930. He was called to active service in February, 1942, with the rank of captain.

Col. Halbouty

Harold B. Fell, vice president of the Independent Petroleum Association of America, addressed the Oklahoma Geological Society at Oklahoma City on the outlook for petroleum development.

C. L. Baker, assistant vice president, First National Bank & Trust Company, Tulsa, has resigned after 20 years to become associated with the Mercantile Bank of Dallas, Texas. **Capt. Joseph E. Parker,** lately discharged from the army, has been made manager of the bank's Consumer Credit and Personal Loan Department.

R. Godfrey, Bahrein Petroleum Company, Bahrein Island, is making his first visit to the United States. He is in Houston at present, and will soon go to the West Coast.

E. D. Forquer has been promoted to vice president and comptroller, and **Rufus A. Colgin** to vice president in charge of operations for W. C. Norris, Manufacturer, Inc., Tulsa.

John A. McCutchin, manager of the production division for British American Oil Company, Ltd., at Calgary, Alberta, Canada, for the past two years, has resigned and accepted a position as manager of the Illinois-Indiana division for Sohio Petroleum Company. His headquarters will be at Mt. Vernon, Illinois.

Paul Weaver, geophysicist for Gulf Oil Company, and **Dr. H. D. Wild, Jr.,** manager of the technical research division of Humble Oil & Refining Company, spoke before the Texas Chapter of the American Society for Metals in Houston.

Karl Hoblitzelle recently was named chairman of the board of the Republic National Bank, Dallas, and **Leslie Waggener** was named vice chairman. Hoblitzelle has been associated with the bank during most of the years of its growth since 1920. Waggener has been a director and officer of the bank for 22 years, and chairman of its executive committee since 1931.

J. R. Fitz-Hugh, Tulsa, will head the economics department organized by The Carter Oil Company. A coordinator of refining and manufacturing operations for Carter during the past year, Fitz-Hlhugh joined the Standard of Louisiana organization as a process engineer at the Baton Rouge refinery in 1937.

Robert Nerem has succeeded **J. A. Parks,** retired, as superintendent of Standard Oil Company (Indiana) sales department construction engineering. Parks retired August 15 after nearly 28 years with the company. Nerem joined the company in 1926 as a draftsman and became assistant superintendent in 1936. He is a graduate of civil and structural engineering from the Norwegian Institute of Technology. His place as assistant superintendent will be filled by transfer of **R. A. Niles** from South Bend, Indiana, where he has been superintendent of construction several years. Niles served also at Green Bay, Wisconsin, from 1937 to 1940.

W. E. Dueringer has been appointed assistant sales manager for Bailey Meter Company, Cleveland, and **H. E. Weaver** has been made a department manager. Both have been associated with the company for over 25 years in various engineering and sales capacities. Each is a graduate engineer and a specialist in his field.

Lloyd R. Leatherman and **Charles M. Mertz** have been appointed representatives for all of Michigan, excluding the upper peninsula, for The Edward Valve & Manufacturing Company, of East Chicago, Indiana. The firm of Leatherman & Mertz has offices in the Book Building, Detroit.

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Give You Quick, Accurate Results With *Less Effort* . . . at *Less Cost*

Simple in design, ruggedly built for heavy duty service. Gear ratio and throw of crank produce required speed with no strain. Heads and cranks of 100 CC and 15 CC machines are interchangeable. Meets A.S.T.M. *Standard Method D-96 and A.P.I. Code No. 25 requirements.* Ask for full details.

W·H·CURTIN & CO. Inc.
HOUSTON U·S·A TEXAS

MEN IN THE INDUSTRY NEWS

N. B. Hedden has been appointed sales representative for the Vortox Company, Claremont, California. His territory will comprise the eastern and central states, with headquarters in Detroit, Michigan. Prior to joining Vortox, he was in charge of the tractor test program of the Oliver Corporation, Phoeniz, Arizona. Previously, he was associated with the Ethyl Corporation at the Chicago Division, for 14 years.

N. B. Hedden

R. E. Smith, oil operator of Houston, and chairman of the Good Neighbor Commission of Texas, spoke on Latin American relations before the Houston Rotary Club September 13.

Bruce K. Brown, vice president in charge of development, Standard Oil Company (Indiana) strongly supported **Dr. Vannevar Bush's** recent report calling for a National Research Foundation in a talk September 11 before the Kansas City section of the American Chemical Society.

Harry G. Howell is the new vice president of Tube Turns, Inc., Louisville, Kentucky, in charge of production. A native Kentuckian, he returns to the Bluegrass after four years as head of Oldsmobile's plant and a total of 22 years' association with General Motors. Born in Kilgore, Kentucky, he attended Purdue and began his career with GM's Buick Division.

F. A. Street has been transferred to Jones & Laughlin Supply Company's New York Export Department. In 1933 Street joined the old Frick-Reid Supply Corporation as a storeman at Ada, Oklahoma, moving to the Oklahoma City, Oklahoma, store in 1937, and to Anson, Texas, in 1938. In 1941 he was made manager of the Wichita Falls, Texas, store, devoting his time thereafter in a managerial and sales capacity until he enlisted in the U. S. Army in 1942.

On retirement from active duty he rejoined Jones & Laughlin Supply Company in July, 1944, and has served since that time as city sales representative at Tulsa.

Dan M. Guy has been appointed manager of the agricultural division of the Technical Service Department of Ethyl Corporation, and will make his headquarters at the Engineering Research Laboratories, Detroit. He joined Ethyl in 1931 as a member of the sales department and has specialized in agricultural engineering for the past ten years.

J. E. Brantly, president of Drilling and Exploration Company, Inc., Dallas, was guest speaker September 13 at the meeting of Houston Nomads. He presented discussion of activities, developments and prospects for the oil industry outside the United States and, particularly, in South America.

Ben Hanly has been named sales manager for the Rocky Mountain and Canadian division of Reed Roller Bit Company. He formerly was office man for Reed in Oklahoma City and later was in charge of the company's war plant work in California.

Deaths

Richard Vryling LeSueur, president and chairman of the board of Imperial Oil Limited, Canadian affiliate of Standard Oil Company (New Jersey), died in Toronto, Canada, September 6.

LeSueur, 64, was vice chairman of the War Finances Committee of Ontario, and was a leader in other cultural and charitable activities. He started his business career in Sarnia, Ontario, as a lawyer and served a term in the Canadian House of Commons. In 1926 he was elected to the board of International Petroleum Company, Limited. He became vice president of Imperial in 1933, and in 1944 was elected president of both companies. LeSueur played a prominent role in the development of Turner Valley and Norman Wells in northwest Canada and as an official of International Petroleum he intensified similar work in Venezuela, Colombia, Ecuador and Peru.

George E. Kadane, president of Kadane-Griffith Oil Company and George E. Kadane & Sons and a veteran operator in North Texas, died September 7 in Wichita Falls. He was a native of Syria.

William Elbert Gray, vice president and general manager of the Dominican Seaboard Oil Company, an affiliate of Standard Oil Company (New Jersey), was killed when an airliner crashed in South Carolina September 7. Gray, 47, served many years as a district superintendent in charge of drilling for other affiliates of Jersey Standard in Venezuela.

James L. Elliott, 79, retired oil operator of Tyler, Texas, died September 11.

James C. Wilhoit of Houston, former attorney for Tide Water Associated Oil Company, died in Los Angeles September 5. Wilhoit, 66, has been connected with the company for 24 years when he retired last February.

The Solution For Solving the Problem of Boiler Scale and Corrosion

↓

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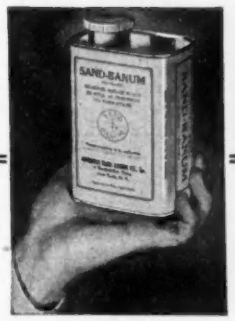

"The Entirely Different Boiler and Engine Treatment"

Here's Whys for the Wise

This proved product is a pure colloidal compound, guaranteed absolutely harmless to personnel and equipment. It removes and prevents scale and corrosion in boilers and tubes while the equipment is operating; its action entirely automatic.

Comes ready to use immediately as is—any where and every where—simplicity itself. Requires no special equipment, or titrating—has no carrying agent; just 100% active ingredients. Retains full efficiency regardless of age, climate, water or operating conditons; eliminates need of water analyses. Comes in 16 oz. cans taking up a minimum of space.

Its consistent use results in operating efficiency, lessens repair bills, reduces fuel cost, eliminates mechanical scrapings and lessens time out of service; fewer and shorter shut-downs.

Complete data will be gladly sent on request. You can rely on Sand-Banum's record of service for more than nineteen years. It has been consistently used by representative companies here and abroad over a long span of years.

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30 Rockefeller Plaza New York 20, N. Y.

Arc Welding

The Lincoln Electric Company, Cleveland 1, Ohio, announces the eighth edition of "Procedure Handbook of Arc Welding Design and Practice." This edition includes details of the most recent welding methods and techniques, many of which played such an important part in winning the war, and incorporates information that makes obsolete much of the previous literature on welding.

A special effort has been made to provide complete information to help those in all fields of industry obtain the greatest possible benefits from the process of arc welding in the design and construction of various parts and products and in the use of the process as a maintenance tool.

In addition to standard data on welding symbols, speeds and costs, characteristics of metals, preheating, stress relieving, approach to welded design, and other pertinent information, the handbook includes 16 new subjects such as new cost tables, new welding techniques, mathamatical calculations for new welded-designed structures, latest steel specifications on SAE and AISI, including National Emergency Steels, etc., underwater cutting, shop ventilation, maintenance of welding equipment, methods of testing, and filler metal specifications for arc welding electrodes.

Safety Program

The National Safety Council, 20 North Wacker Drive, Chicago 6, has published a 16-page pamphlet, "Industrial Safety Tomorrow," which offers a specific program designed to help industry meet the threat of an increased accident toll in the postwar period. The publication was prepared under the guidance of 38 national organizations interested in industrial safety. These organizations include industrial management associations, labor unions, civic organizations, educational institutions and insurance associations.

Actual preparation of the pamphlet was handled by a special committee on postwar industrial safety, headed by C. R. Cox, president of the National Tube Company, Pittsburgh.

The pamphlet contains a detailed list of 32 main elements of an effective industrial safety program, grouped around the following topics: Safety organization; inspections; accident records; first aid and medical facilities; buildings and grounds; machinery, guards and equipment; personnel selection and training; maintaining interest; reemployment of service men and women; off-the-job safety. Copies can be secured from The National Safety Council.

World War II

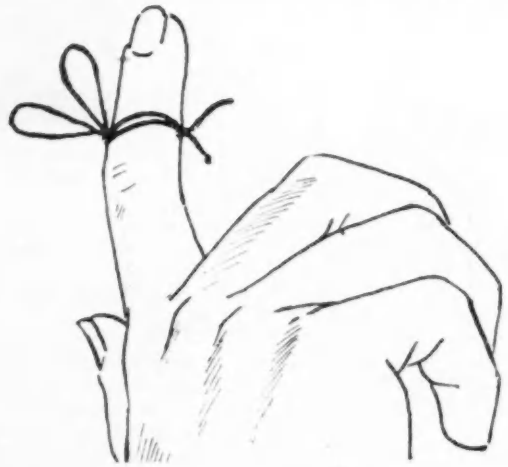
Rochester Ropes, Culpepper, Virginia, has issued a "Victory" edition of *The Rope Maker*, its house organ, which gives a thumb-nail sketch of World War II, beginning with background incidents in 1929, and ending with V-J Day, August 14, 1945. The material was compiled and edited by Leo Barnes, author of a series of articles on postwar relations between government and business, now appearing in *The Rope Maker*. The World War II review is concise and chronological.

Extinguishers

The Safety Research Institute, 420 Lexington Avenue, New York 17, New York, has issued detailed instructions on keeping hand type fire extinguishers ready for instant use. Such extinguishers, it is said, must be inspected frequently to maintain them in good working order, and they must be refilled immediately after use and thoroughly serviced at least once a year.

Steel Castings

Lebanon Steel Foundry, Lebanon, Pennsylvania, is offering reprints of an article by John W. Juppenlatz, chief metallurgist. Title of the article which appeared in *The Iron Age*, is "Controlling Quality of Steel Castings." Copies may be had by writing the company.



Something to Remember

When the chips were down and any delay could be disastrous, Gulf States electric power did not fail the men of the oil industry.

That's something to remember now that we are all producing again for peace.

Our service, which has proved so dependable for pipeline and other oil industry applications in years gone by, will be even better in the days ahead when new equipment is available and much of our experienced manpower returns from war to help us to maintain our record of power service unexcelled.

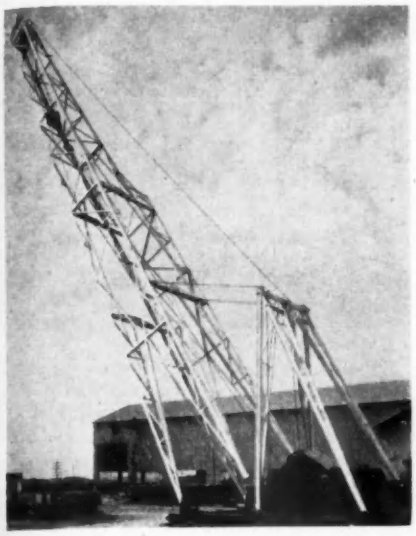
GULF STATES UTILITIES COMPANY

General Offices: Beaumont, Texas
Baton Rouge, and Lake Charles, La.

DEPENDABLE GULF STATES UTILITIES CO. PUBLIC SERVICE

1—Portable Mast

Emsco Derrick & Equipment Company, Los Angeles, California, announces the Emsco 12-P Portable Mast for rotary drilling. The mast is fabricated in seven welded sections for convenient transportation.



These sections are quickly and easily assembled on the ground or on cribbing. The crown and traveling blocks are strung for drilling and, with the aid of an auxiliary line, the mast is raised by the drawworks. The skid base breaks down to road widths for hauling and is furnished in lengths to suit the rig. Any standard unitized drawworks and any rotary table may be used.

Perfect visibility is permitted because the patented bulge construction for inside racking makes it possible to eliminate an open face and thus avoid interior bracing. The legs are spaced symmetrically with respect to the center of the well, resulting in exceptionally favorable working conditions on the floor. A high V-window affords the advantages of open face. These features assure perfect visibility between the driller and the working platform and clear unobstructed working space inside the mast.

In raising and lowering the mast a positive strain is kept on the line at all times during the raising or lowering operation by means of a pivot point change. The center of rotation is shifted by an arrangement of the base connection.

Lacing of all four faces results in maximum stiffness for the mast. The crown block is concentrically mounted, resulting in an equal loading of the legs, giving excellent distribution of the load on the foundation. Working platforms are floored with heavy expanded metal providing a non-slip surface. The platforms are hinged and can be folded up against the face of the mast if desired.

Standard equipment includes a catline sheave, built-in deadline anchor and ladders on both ginpole and mast. Optional equipment includes sandline sheave and crown safety platform.

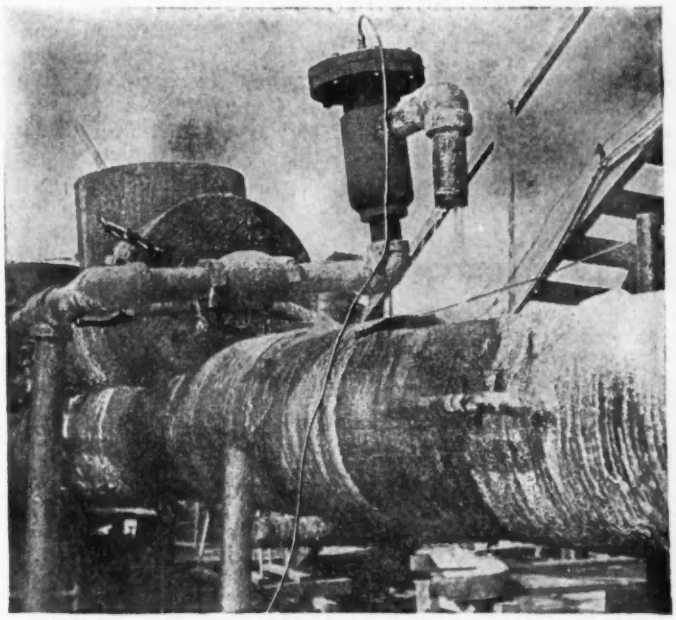
2—Water Control Valve

Warren Automatic Tool Company, Houston, has introduced an automatic water control valve by which it is claimed that the flow of water into the mud stream can be controlled automatically.

Actuated by the mud pump, the valve allows water to flow into the stream only as long as the pump is running. As soon as the pump is shut down, the valve automatically stops the flow of water.

Constructed to deliver a full two-inch stream of water, its output can be regulated to the exact volume necessary by the installation of a globe valve in the water line ahead of the valve. While the pump is running and the automatic valve is open, the "derrick man" or mud engineer sets the globe valve to deliver the volume of water necessary to maintain proper mud weight and viscosity. When the pump shuts down this flow of water is stopped by the automatic closing of the valve.

This method of water regulation assures the operator better control of the mud weight and viscosity. It prevents the necessity of adding additional weighting materials due to failure to close the water valve while the pump is down. The automatic valve is especially valuable to the mud engineer or "tool pusher" when close control of weighted mud is necessary, because the regulated volume of water into the mud stream remains constant throughout each starting and stopping of the pump. Should a damaged seat in the globe valve prevent complete closing, the automatic valve, by completely shutting off the flow of water, prevents such leakage from entering the mud stream when the pump is down.



The Warren valve is actuated by steam pressure from the mud pumps, against a Neoprene diaphragm which is spring loaded. All working parts in contact with the water are made of non-corrosive materials. The construction of the valve body and parts are rugged yet compact. Simple in design, it gives maximum service with a minimum cost of maintenance. The valve is 11 inches long and nine inches across the top diaphragm plate. It weighs 39 pounds.

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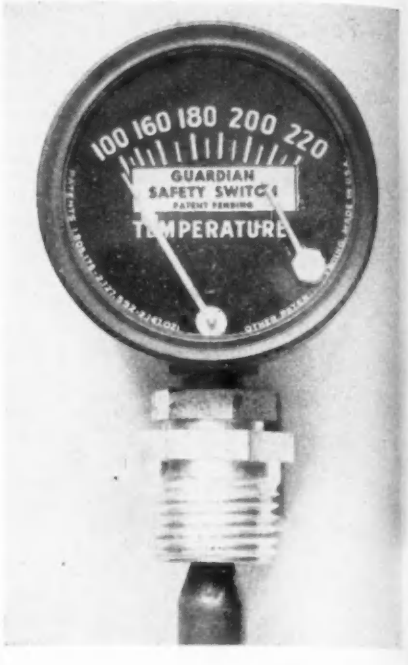
NEW EQUIPMENT . . . LITERATURE

3—Safety Switch

Frank W. Murphy, Manufacturer, Tulsa, has patented and placed on the market the Guardian Safety Switch for oil field engines. The switch is designed to prevent damage caused by failure of cooling system or oil pressure. It is designed to ground the magneto without elaborate mechanism or wearing parts. Ground wire from magneto is connected to an adjustable contact in the gauge, and the contact is insulated from the gauge by a specially designed insulator made from durable plastic materials. The silver contacts are visible through the gauge face and are easily positioned and locked in place to contact the gauge pointer at any position on the dial within the danger range.

All temperature gauges have ½-inch pipe connection and oil gauges have ⅛-inch male pipe connection. It gives a direct reading of water temperature or oil pressure and advises whether the switch is in working condition. Synthetic rubber gaskets make all gauges moisture and gas proof and there is no corrosion or explosion hazard.



4—Drill Collars

Chicago Pneumatic Tool Company, Oil Tool Division, Oklahoma City, has recently added a line of drill collars to its line of oil tools.

These collars are made of chrome nickel alloy steel forgings, overall hardened for maximum strength and resistance to abrasion, vertically quenched to insure straightness and freedom from distortion strains, bored to concentricity tolerances from one end so as to avoid any harmful offsets in the bore at the center of the collar.

Collars can be furnished either flush or with elevator recess, slip grooves, overshot grooves, or turned to standard tong diameter at one or both ends. Collars are threaded as desired by the customer with API regular, full hole or internal flush connections with all threading operations carefully controlled to insure correct alignment.

Sizes available at present from Oklahoma City stock are as follows: 3½-inch connection size, outside diameters 4⅝, 5 or 5¼ inches outside diameter with 1⅞-inch bore; 4½-inch connection size, outside diameters 5¾, 6 or 6¼ outside diameter with 2¼ or 2⅞-inch bore; 5-9/16-inch connection size, outside diameters 6¾ or 7-inch outside diameter with 2¾-inch bore; 6⅝-inch connection size, outside diameters 7¾ or 8-inch outside diameter with 3½-inch bore.

Use the Coupon

For free copies of Manufacturers' Literature or more information on products described on these pages, use the convenient mailing coupon on page 109.

5—Rubber Processing

Sun Oil Company has perfected a new processing aid for GR-S synthetic rubber. From the beginning it was realized by research men in the rubber industry that GR-S lacked certain vital qualities of natural rubber, and that a softener was needed. The Sun Company product, Circosol-2XH was developed to meet this problem.

Literature

6—Hortonspheroid

The Chicago Bridge & Iron Company, Chicago, has published a booklet describing the Hortonspheroid and discussing the reduction of evaporation losses from volatile liquids by storing them under pressure in Hortonspheroids. The reduction of filling, boiling and breathing losses is discussed, with a description of the fittings included. Gauging methods with theoretical gauge tables, tank strappings and water calibration are covered.

The design of the 80,000, 100,000, and 120,000 barrel type has been changed and the new Hortonspheroid is being furnished with two nodes instead of three.

Jones and Laughlin Managers Study Peacetime Problems

District managers of Jones & Laughlin Supply Company were called to Tulsa, recently to perfect plans for meeting postwar problems in connection with supplying the material and equipment needs of the oil and gas industries. In a three-day round table discussion, plans were outlined for expanding and enlarging field stocks and for more efficient handling of the requirements of the oil and gas industry throughout the area served by the 76 field stores and 15 sales offices now in operation.

Standing, left to right, are G. E. Gable, F. J. Kopp, R. D. Hilborn, R. C. Hunter, H. D. Stanley, H. L. Wilkins, J. K. Guinn, C. E. Robertson, A. G. Bastian, F. C. Bryan, H. U. Everett, G. B. Chapman, J. A. Evans, Jr., C. T. Owen, E. B. Thornburg, H. H. Brown.

Sitting, middle row, are A. G. Chamberlain, C. E. Wilson, L. R. Roberts, M. A. Park, R. J. Woods, Jr., Rainey Elliott, Paul R. Warner, H. H. Wilson, Robert McCoy, J. L. Shakely, J. L. Goodridge, Doyne Carson, C. W. Moore, H. E. Wagner.

Bottom row: M. L. Eubank, W. L. Vinson, A. A. Hopper, J. W. Kaye, U. G. White, Jr., J. W. Spears.

Exploration Firm Formed

The Republic Exploration Company has been organized as a new geophysical unit, with offices in the 10 East Fourth Street Building, Tulsa. Organizers and active personnel include A. V. Dayton, research director and assistant to the president of Engineering Laboratories, Inc., Tulsa; Frank B. Smith, supervisor of the Mid-Continent area for Petty Geophysical Company, San Antonio; Frank E. Brown, district seismologist and assistant to the departmental head to the geophysical department of the Shell Oil Company, Tulsa.

Wage Hike Authorized

A 10 percent wage increase has been authorized for George E. Failing Supply Company employes. Failing has headquarters and a plant at Enid, Oklahoma, as well as a plant in Houston. The company manufactures portable core-drilling, slim-hole production and seismograph equipment.

Oklahoma Firm Sold

Aireon Manufacturing Corporation, with headquarters in Kansas City, Kansas, announces purchase of the assets of the Midco Tool and Supply Company, Oklahoma City, manufacturers of oil well supplies and accessories. According to Randolph C. Walker, president, research engineers of the hydraulics division of Aireon, in Burbank, California, have developed certain hydraulic devices for oil field use which made necessary the acquisition of an operating company in the oil fields.

Brugge Opens Office

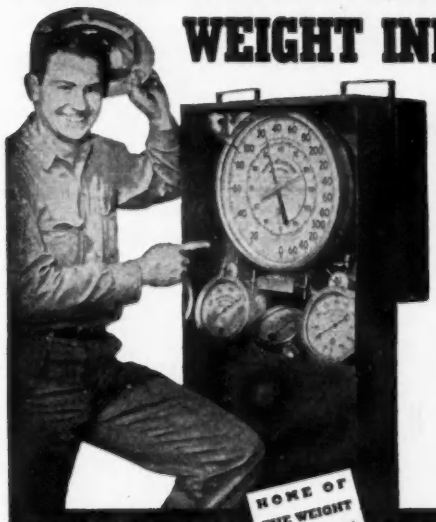
The Lincoln Electric Company has opened a factory branch sales office in St. Louis.

The new branch, under the direction of B. J. Brugge as welding engineer and district manager of sales and service, will be located at 4427 Manchester Avenue.

Brugge has been with The Lincoln Electric Company since 1931.

Wins Fourth Star

Chain Belt Company, Milwaukee, Wisconsin, has been awarded a fourth star to be added to its Army-Navy E Pennant. The original award was made in September, 1942. The first star was authorized in 1943, and two additional stars in 1944. All awards have been for efficiency in production of war equipment.



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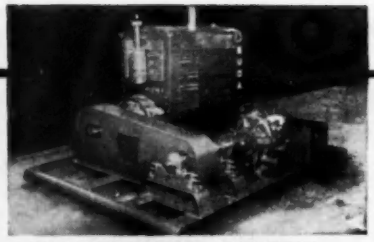

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Advertisers' Index

EDITORIAL INDEX, PAGE 43

* Indicates detailed information on products and services included in 1943-44 edition of Composite Catalog of Oil Field and Pipe-Line Equipment.

*Allied Chemical & Dye Corp. 18
*Alten's Foundry & Machine Works 69
*American Sand-Banum Co. 107
Baird Manufacturing Co. 112
*Baldwin-Duckworth Division Chain Belt Co. 22
*Baroid Sales Division National Lead Co. 25
W. M. Barret, Inc. 112
*The Barrett Division Allied Chemical & Dye Corp. 18
*Bowen Company of Texas 87
*Clarence L. Boyd Co. 71
Briggs & Stratton Corp. 94
*Brown Oil Tools, Inc. 21
*Buckeye Traction Ditcher Co. 71
*Byron Jackson Co. 63
*Cameron Iron Works, Inc. 91
*Chain Belt Co. 22
*Climax Engineering Co. 95
W. H. Curtin & Co. 106
*Diamond Chain & Manufacturing Co. 2
David Donoghue 110
*Dresser Industries, Inc. 14
*E. I. du Pont de Nemours & Co. 56
*Economy Electric Lantern Co. 105
*Fairbanks, Morse & Co. 41
The First National Bank & Trust Co. 89
*Fluid Packed Pump Co. 29
Ft. Worth Laboratories 112
*The Garlock Packing Co. 87
Gatoura & Stramler 112
*General Electric Co. 39
*Globe Oil Tools Co. 23
*Grant Oil Tool Co. 33
*Gray Tool Co. 26
Grove Regulator Co. 19
*The Guiberson Corp. 44
*The Gulf Publishing Co. 40
Gulf States Utilities Co. 108
Tom Hafer Co. 110
Halliburton Oil Well Cementing Co. III Cover
Leland Hamner Co. 110
*Harrisburg Steel Corp. 93
Harrison Equipment Co. 100
Houston Laboratories 112
*Hughes Tool Co. IV Cover
Independent Exploration Co. 15
*International Harvester Co. 10
The International Nickel Co. 20
W. P. Jenny 105
*Jensen Brothers Manufacturing Co. 97
*Jones & Laughlin Steel Corp. 72
*Jones & Laughlin Supply Corp. 42
*Kerotest Manufacturing Co. 11
*L-K Pump Valve Co. 98
*Lamtex Equipment Corp. 100
*Le Roi Co. 99
*Link-Belt Co. 1
Lone Star Cement Corp. II Cover
Mahan, McCarty & Besse, Inc. 90
*The Manhattan Rubber Manufacturing Division, Raybestos-Manhattan, Inc. 9
*Martin-Decker Corp. 111
*Midco Bailer Co. 96
*Miller Sand Pump Co. 69
*Mission Manufacturing Co. 38
*Lee C. Moore & Co. 12-13
Murphy Diesel Co. 102
Murray Rubber Co. 55
*National Lead Co. 25
*The National Supply Co. 82-83
*New York Belting & Packing Co. 36-37
Tom Niland Equipment Co. 112
North American Geophysical Co. 98
*Oil Center Tool Co. 31
*Oil City Brass Works 100
Oil Industry Mailing List Co. 112
*Oil Well Supply Co. 35
*Patterson-Ballagh Corp. 46 and 105
*Pelican Well Tool & Supply Co. 92
*Penberthy Injector Co. 68
Petroleum Electric Power Association 64
*Raybestos-Manhattan, Inc. 9
*Reed Roller Bit Co. I Cover
Republic Steel Corp. 27
Republic Supply Co. 16-17
Rodgers Hydraulic, Inc. 34
Rouse Exploration Drilling Co. 105
*Shaffer Tool Works 4-5
Shell Development Corp. 28
Sinclair Refining Co. 6
Southern Engine & Pump Co. 89
Southwest Machinery Co. 70
Standard Oil Company of California 8
*Standco Brake Lining Co. 112
Sterling Engine Co. 32
*Tank Seal Products Co. 101
Texas Electric Steel Casting Co. 7
*Thornhill-Craver Co. 112
Trading Post Section 103
Treasury Department 30
*Union Wire Rope Corp. 24
United States Steel Corp. 35
Western Geophysical Co. 100
*Wilson Supply Co. 3
*Wisconsin Motor Corp. 84

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